11-5820-401-35-1

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NAVY NAVELEX 0967-432-3020

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

CONTROL, FREQUENCY SELECTOR C-2742/VRC

AND

CONTROL, RADIO SET C-2299/VRC

DEPARTMENTS OF THE ARMY AND THE NAVY
APRIL 1973

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DEPARTMENTS OF THE ARMY
AND THE NAVY
WASHINGTON, DC, *17 January 1977*

Direct Support, General Support, and Depot Maintenance Manual Including Repair Parts and Special Tools Lists CONTROL, FREQUENCY SELECTOR C-2742/VRC AND CONTROL, RADIO SET C-2299/VRC

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To be distributed in accordance with DA Form 12-51, Direct and General Support maintenance requirements for C-2742/VRC, C-2299/VRC.

TECHNICAL MANUAL
No. 11-5820-401-35-1
TECHNICAL MANUAL
NAVELEX 0967-LP-432-3021

DEPARTMENTS OF THE ARMY
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WASHINGTON, DC, *15 April 1973*

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS
CONTROL, FREQUENCY SELECTOR C-2742/VRC
AND
CONTROL, RADIO SET C-2299/VRC

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*This manual supersedes so much of TM 11-5820-401-35, 2 May 1962, including changes as pertains to Control, Frequency Selector C-2742/VRC and Control, Radio Set C-2299/VRC.

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CHAPTER 1

INTRODUCTION

1-1. Scope

a. This manual covers direct support (DS), general support (GS), and depot maintenance of Control, Frequency Selector C-2742/VRC (fig. 1-1) (ch. 2) and Control, Radio Set C-2299/VRC (fig. 1-2) (ch. 3). Repair parts lists for the controls are provided in appendixes B and C.

b. Operation, operator, and organizational maintenance, and organizational repair parts are provided in TM 11-5820-401-12.

1-2. Maintenance Forms and Records

Department of the Army forms and procedures used for equipment maintenance will be those prescribed in TM 38-750.

1-3. Reporting of Errors

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be made on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-CR, Fort Monmouth, N.J. 07703.

1-4. Official Nomenclature and Common Names

a. Official Nomenclature. Official nomenclature followed by (*) indicates all models of the equipment; thus—

(1) Receiver-Transmitter, Radio RT-246-(*)/VRC represents RT-246/VRC and RT-246A/VRC.

(2) Receiver-Transmitter, Radio RT-524-(*)/VRC represents RT-524/VRC and RT-524A/VRC.

(3) Receiver, Radio R-442(*)/VRC represents R-442/VRC and R-442A/VRC.

b. Common Names. The following common names are used to represent the indicated equipment:

Item	*Common name*	*Publication*
Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC-49.	AN/VRC-12-series radios.	TM 11-5820-401-12
Receiver-Transmitter, Radio RT-246(*)/VRC or RT-524(*)/VRC.	Receiver-transmitter.	TM 11-5820-401 12
Microphone, Dynamic M-80/U; Headsets H-140A/U and H-251/U; Headset-Microphone H-161/U; Loudspeaker LS-454/U; and CVC helmet.	Audio accessories is a term used in this manual to apply to these and similar devices.	
Combat Vehicle Crewman Helmet T56-6 with Headset-Microphone Kit MK-1039/U as the audio accessory installed in it.	CVC helmet.	

1-5. Purpose and Use

a. Control, Frequency Selector C-2742/VRC (fig. 1-1). The C-2742/VRC is used with the RT-246(*)/VRC (fig. 2-1) to provide remote automatic selection of the 10 present frequencies that have been set up in the RT-246(*)/VRC. It can also turn off the power to the RT-246(*)/VRC and turn it on again to control the radiofrequency (RF) output power (high and low) of the RT-246(*)/VRC.

b. Control, Radio Set C-2299/VRC (fig. 1-2).

The C-2299/VRC is used with the receiver-transmitters of Radio Sets AN/VRC-49 and AN/VRC-45 to enable the radios to perform automatic retransmission of signals between radios that are too far apart to communicate directly with each other.

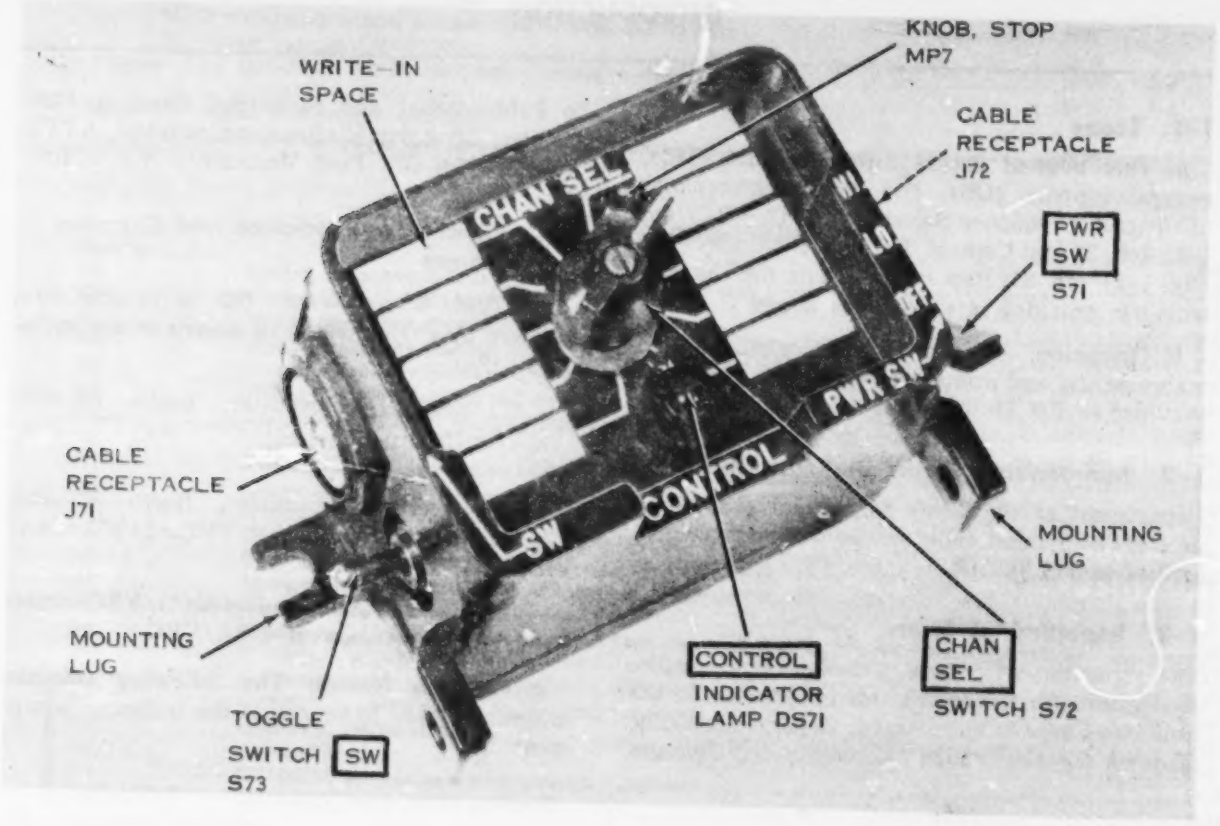


Figure 1-1. Control, Frequency Selector C-2742/VRC.

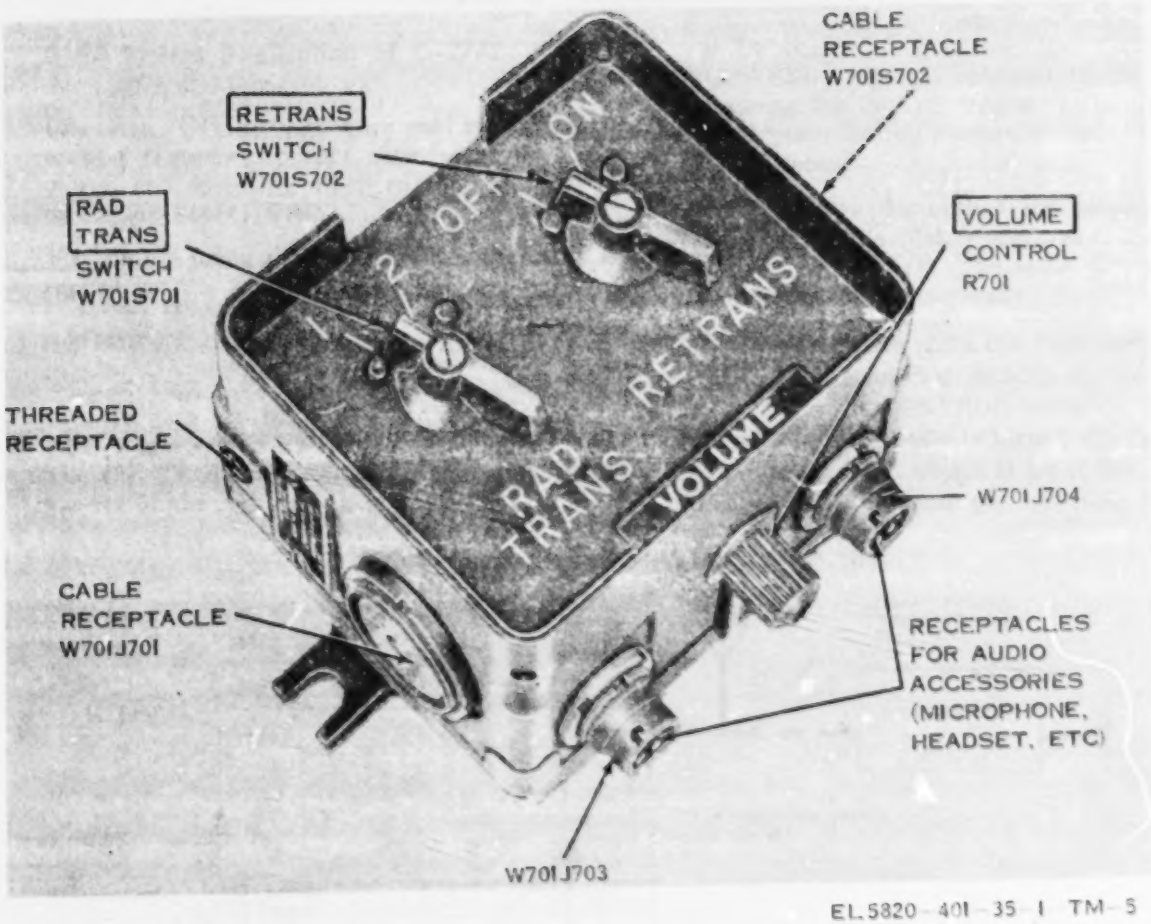


Figure 1-2. Control, Radio Set C-2299/VRC.

CHAPTER 2

CONTROL, FREQUENCY SELECTOR C-2742/VRC

Section I. CIRCUIT FUNCTIONING

2-1. System Application of C-2742/VRC (fig. 2-1)

One or two C-2742/VRC's are used to control operating frequency, output radiofrequency (RF) power, and operating direct current (dc) power of the RT-246(*)/VRC.

a. Before using the C-2742/VRC, the radio is turned on, the pushbutton circuits are adjusted to set up the desired operating frequencies, and the POWER switch is set to the REMOTE position.

b. To gain control of the radio, the C-2742/VRC toggle switch SW is operated momentarily. The CONTROL indicator lamp lights indicating control of the radio (*c*, *d*, and *e* below).

c. To change frequencies, the C-2742/VRC CHAN SEL switch is operated to the position containing the desired frequency. In the radio, the automatic tuning mechanism tunes the radio within 5 seconds.

d. To change the output RF power, the C-2742/VRC PWR switch is operated to the desired condition (HI or LO). The radio power control circuits respond automatically.

e. To turn off the radio, the PWR switch of the C-2742/VRC connected directly to the radio is set to OFF. The CONTROL indicator light goes out indicating the radio is turned off. To turn on the radio, the PWR switch is set to ON. The second C-2742/VRC cannot perform these functions.

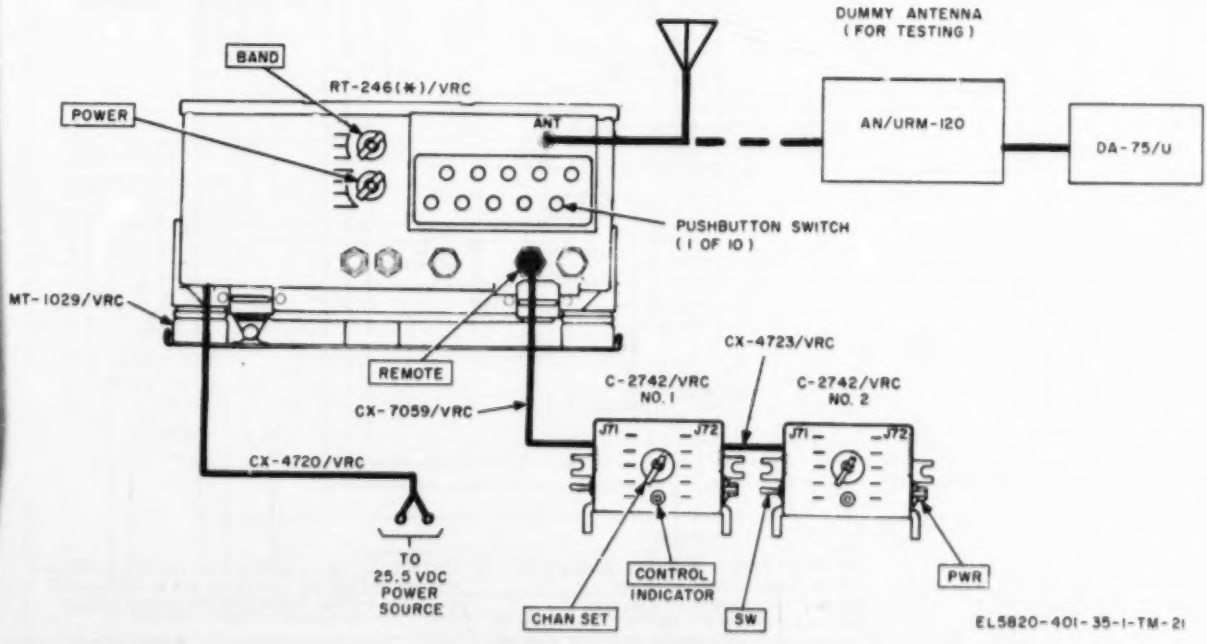
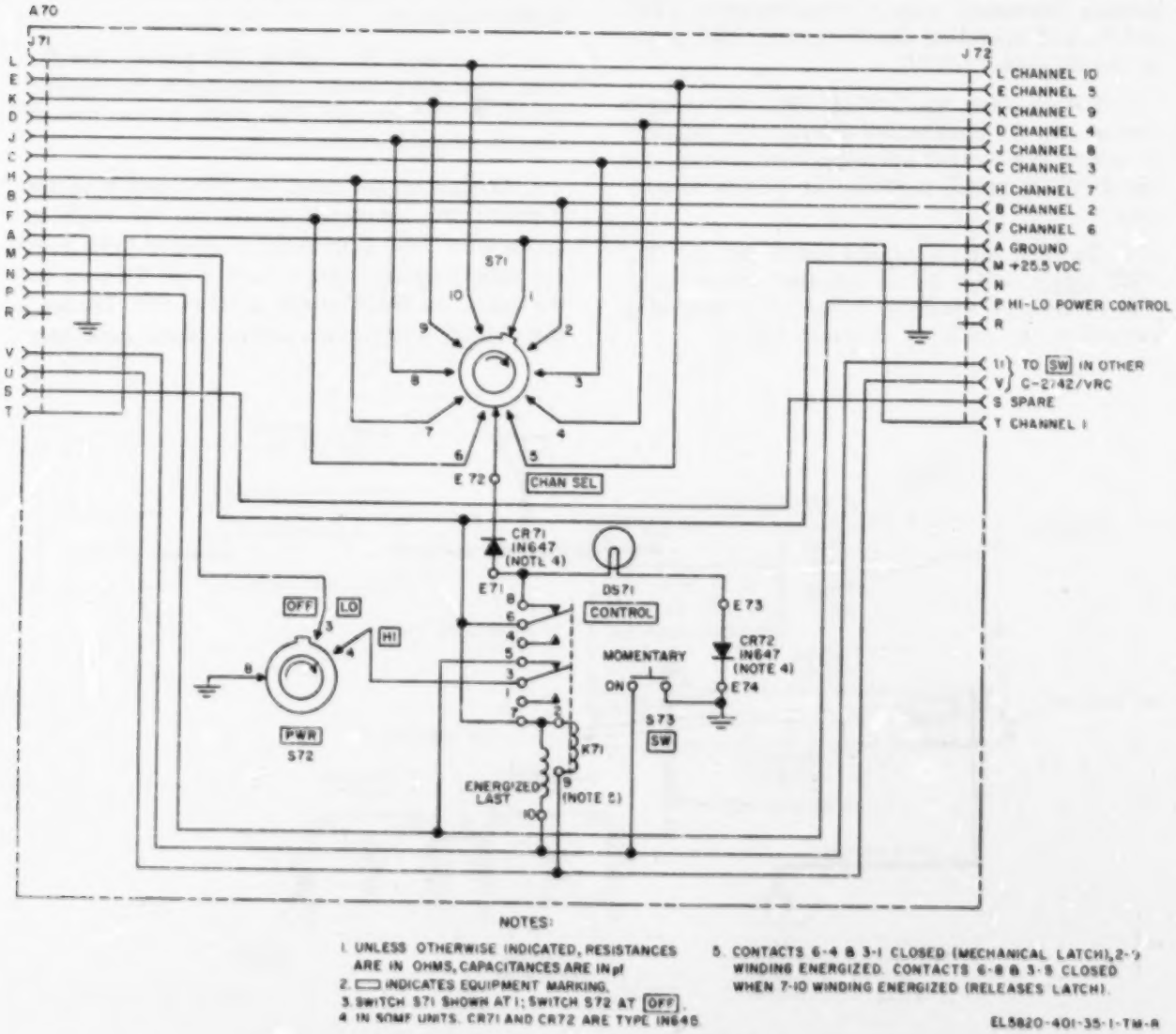


Figure 2-1. System application of C-2742/VRC.

2-2. Control, Frequency Selector C-2742/VRC, Circuit Functioning
(fig. 2-2)

The C-2742/VRC permits the selection of any one of the 10 preset frequencies on the RT-246(*)/VRC and also controls power to the RT-246(*)/VRC. Figure 2-3 is wiring diagram of the C-2742/VRC.

a. One C-2742/VRC in System. Momentary switch SW S73 provides a means of operating latching relay K71. Switch S72 momentarily applies a ground to coil 7-10 of relay K71 to release the locking mechanism and allow contacts 6-8 and 3-5 to come together. PWR switch S72 controls power to the RT-246(*)/VRC through terminals N and P of connector J71. When S72 is in the LO position, power is applied to the RT-246(*)/VRC by grounding contact N of J71. When S72 is in HI position, the RT-246(*)/VRC is turned on the high RF output power by grounding contact P of J71 through the contacts of K71 and S72. CONTROL indicator lamp DS71 lights to indicate that the C-2742/VRC has control of the RT-246(*)/VRC. CHAN SEL switch S71 functions similarly to the pushbutton switches on the RT-246(*)/VRC front panel by applying +25.5 volts dc through J71 to energize the relay in the RT-246(*)/VRC associated with the preset channel selected. Diode CR71 prevents volt-



NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN pf
2. ▭ INDICATES EQUIPMENT MARKING.
3. SWITCH S71 SHOWN AT 1; SWITCH S72 AT OFF.
4. IN SOME UNITS, CR71 AND CR72 ARE TYPE IN648.
5. CONTACTS 6-4 & 3-1 CLOSED (MECHANICAL LATCH), 2-1 WINDING ENERGIZED. CONTACTS 6-8 & 3-5 CLOSED WHEN 7-10 WINDING ENERGIZED (RELEASES LATCH).

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Figure 2-2. Control, Frequency Selector C-2742/VRC, schematic diagram.

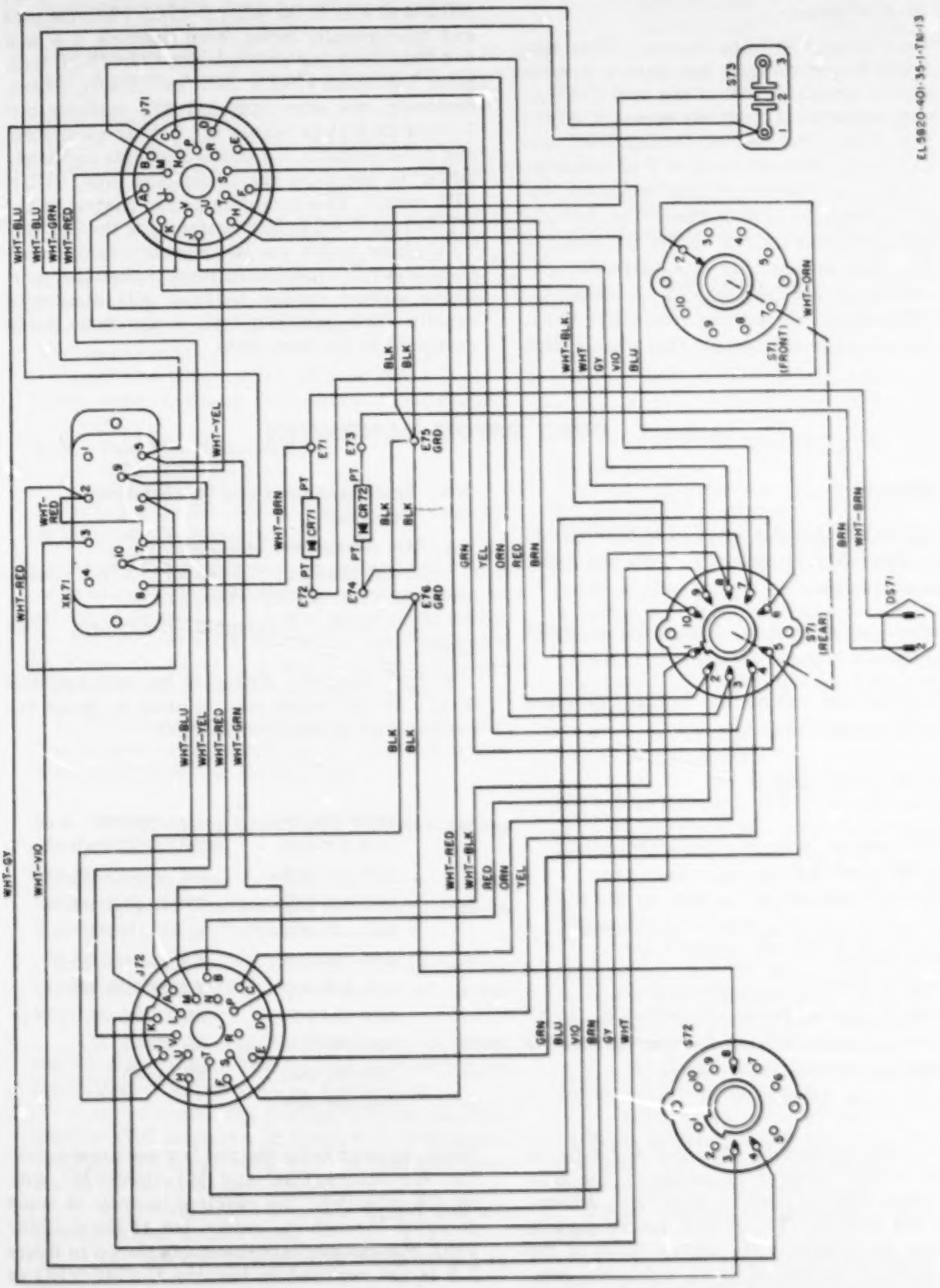


Figure 2-3. Control, Frequency Selector C-2742/VRC, wiring diagram.

ages of the improper polarity from energizing the preset channel relay.

b. Two C-2742/VRC's in System. When two C-2742/VRC's are used in the system, a cable interconnects connector J72 of the first C-2742/VRC with connector J71 of the second C-2742/VRC (fig. 2-1). The second C-2742/VRC can select high power through terminal P of connector J71. It cannot turn power off remotely since terminal N of connector J72 is open. The first C-2742/VRC (connected direct to the RT-246(*)/VRC) functions as described in *a* above. Momentarily operating SW switch S73 at either C-2742/VRC causes both latching relays K71 to operate. The circuit is so arranged that when switch S73 in one C-2742/VRC is operated momentarily, coil 2-9 of K71 in the other C-2742/VRC operates and mechanically locks down contacts 6-8 and 5-3 thus removing power to the CONTROL indicator DS71 and CHAN SEL switch S71. Simultaneously, the same operated S73 operates coil 7-10 of its K71 to release the locking mechanism and allow contacts 6-8 and 5-3 to close and apply power to the CONTROL indicator and CHAN SEL switch. This operation causes control of the RT-246(*)/VRC to be transferred to the C-2742/VRC whose switch was last reported. At the other C-2742/VRC, diode CR72 insures that the energizing voltage applied to relay K71 discharges rapidly. This prevents both relays from being energized at the same time.

Section II. DIRECT SUPPORT MAINTENANCE

2-3. General

The C-2742/VRC is maintained at organizational (TM 11-5820-401-12), direct support, and depot maintenance levels.

a. Repair parts for the C-2742/VRC are listed in appendix B.

b. Facilities for testing the C-2742/VRC are provided in paragraph 2-4.

2-4. Test Equipment and Test Facilities Required

a. Test Equipment and Tools.

(1) Multimeter TS-352B/U (FSN 6625-553-0142; TM 11-6625-366-12).

(2) Toolkit, Electronic Equipment TK-100/G.

b. Test Facilities. Either of the test facilities in (1) or (2) below may be used to check the performance of the C-2742/VRC.

(1) *Radio set facility.*

Item	Federal stock No.	Publication
Receiver-Transmitter, Radio RT-246(*)/VRC	5820-892-0623	TM 11-5820-401-12
Mounting MT-1029/VRC	5820-893-1323	TM 11-5820-401-12
Wattmeter AN/URM-120	6625-813-8430	TM 11-6625-446-15
Dummy Load, Electrical DA-75/U	6625-177-1637	
Handset H-189/GR	5965-069-8886	TM 11-5965-280-15
Power Supply PP-1104/G	6130-542-6385	TM 11-6130-246-12
Cable Assembly, Power, Electrical CX-4720/VRC (10 ft)	5995-823-2726	SB 11-131
Cable Assembly, Special Purpose, Electrical CX-7059/VRC (5 ft)	5995-823-2865	SB 11-131
Cable Assembly, RF CG-1773/U (1½ ft)	5995-889-0830	SB 11-131
Adapter, Connector UG-201A/U	5935-259-0205	

(2) *Test box facility* (figs. 2-4 and 2-5). A test box facility capable of replacing the RT-246(*)/VRC may be used to check the performance of the C-2742/VRC. It will also be capable of testing the C-2299/VRC, control boxes of the radio-intercom system of some vehicular communication systems, and the RT-246(*)/VRC. Items required to use the test box are listed below. The RT-524(*)/VRC and MT-1029/VRC with the CX-4720/VRC are required in order to apply dc power through the control box to the C-2742/VRC. The adapter cable assembly shown in figure 2-5 is not required to test the C-2742/VRC or C-2299/VRC.

Item	Federal stock No.	Publication
Receiver-Transmitter, Radio RT-524(*)/VRC (1 ea)	5820-892-0622	TM 11-5820-401-12
Mounting MT-1029/VRC (1 ea)	5820-893-1323	TM 11-5820-401-12
Cable Assembly, Power, Electrical CX-4720/VRC (10 ft) (1 ea)	5995-823-2726	SB 11-131
Cable Assembly, Special Purpose, Electrical CX-4723/VRC (5 ft) (2 ea).	5995-823-2833	SB 11-131
Power Supply PP-1104/G (1 ea)	6130-542-6385	TM 11-6130-246-12
Test box (1 ea) fabricated from the following items:		
Metal box; approximately 10 in. wide, 12 in. long, and 2½ in. deep; with a protective cover on the bottom.		
Connector, receptacle, electrical; 18 contacts, female (4 ea)	5935-853-6676	App. C (C-2299/VRC)
Connector, receptacle, electrical; 9 contacts, female (J2 of MX-6707/VRC which is part of Antenna AS-1729/VRC) (1 ea).	5935-892-8895	TM 11-5985-262-15
Relay, Electromagnetic (K501 of AM-1780/VRC) (1 ea)	5945-823-2666	
Socket, relay (for K501) (A4XK501 of AM-1780/VRC) (1 ea)	5935-994-8755	
Indicator assembly (4 ea) consisting of:		
Indicator light	6210-882-3615	
Lamp, incandescent (type MS-25237-327)	6240-155-7836	
Toggle switch, single-pole, three-position (ON-OFF-ON)		

2-5. Test Box Fabrication
(figs. 2-4 and 2-5)

Refer to paragraph 2-4*b*(2) for material required to fabricate the test box.

a. Locate the cable connectors, indicator lamp assemblies, and toggle switch approximately as shown in figure 2-5. Use the items as templates for the required holes. Stencil the panel markings as shown in figure 2-5 and coat the stenciling with clear acrylic lacquer or clear varnish.

b. Wire the components as shown in figure 2-4. The adapter cable assembly is not required to test the C-2742/VRC or C-2299/VRC.

2-6. Performance Check and Troubleshooting C-2742/VRC

Troubleshooting the C-2742/VRC is performed by checking its functions and replacing the parts that impair its performance.

a. Test Setup. Connect the C-2742/VRC either to the RT-246(*)/VRC ((1) below) or to the test box ((2) below).

(1) *Using RT-246(*)/VRC* (fig. 2-1). When the RT-246(*)/VRC will be used to troubleshoot the C-2742/VRC, proceed as follows:

(*a*) Connect the C-2742/VRC to the RT-246(*)/VRC as shown in figure 2-1. The second C-2742/VRC is not required. The required items are listed in paragraph 2-4*b*(1).

(*b*) Turn on the dc power supply and adjust its output to 25.5 volts.

(*c*) Set the C-2742/VRC PWR switch to LO.

(*d*) On the RT-246(*)/VRC, set controls as follows:

1. Set the POWER switch to LOW and the BAND switch to AUTO.

2. Set the pushbutton switches to 10 different frequencies using the instruction on the cover of the pushbutton switches. Select 10 frequencies within 5 megacycles of each other; select five near the top of A band and five near the bottom of B band. Recheck the response of each pushbutton and readjust the tuning mechanism as necessary.

3. Set the RT-246(*)/VRC POWER switch to REMOTE.

(*e*) Set the C-2742/VRC PWR switch to OFF. The RT-246(*)/VRC should be turned off.

(*f*) Proceed to *b* below to troubleshoot and test the performance of the C-2742/VRC.

(2) *Using test box* (fig. 2-5). When the test box will be used to troubleshoot the C-2742/VRC, proceed as follows:

(*a*) Connect the test box to the receiver-transmitter and J71 of C-2742/VRC as shown in figure 2-5. The required items are listed in paragraph 2-4*b*(2). The receiver-transmitter dummy antenna is not required.

(*b*) Turn on and adjust the output of the power supply to 25.5 volts.

(*c*) On the receiver-transmitter, set the POWER switch to LOW (to apply power to the test box; the receiver-transmitter performs no other function in the test setup).

(*d*) Set the C-2742/VRC PWR switch to OFF.

(*e*) Proceed to *c* below to troubleshoot and test the performance of the C-2742/VRC.

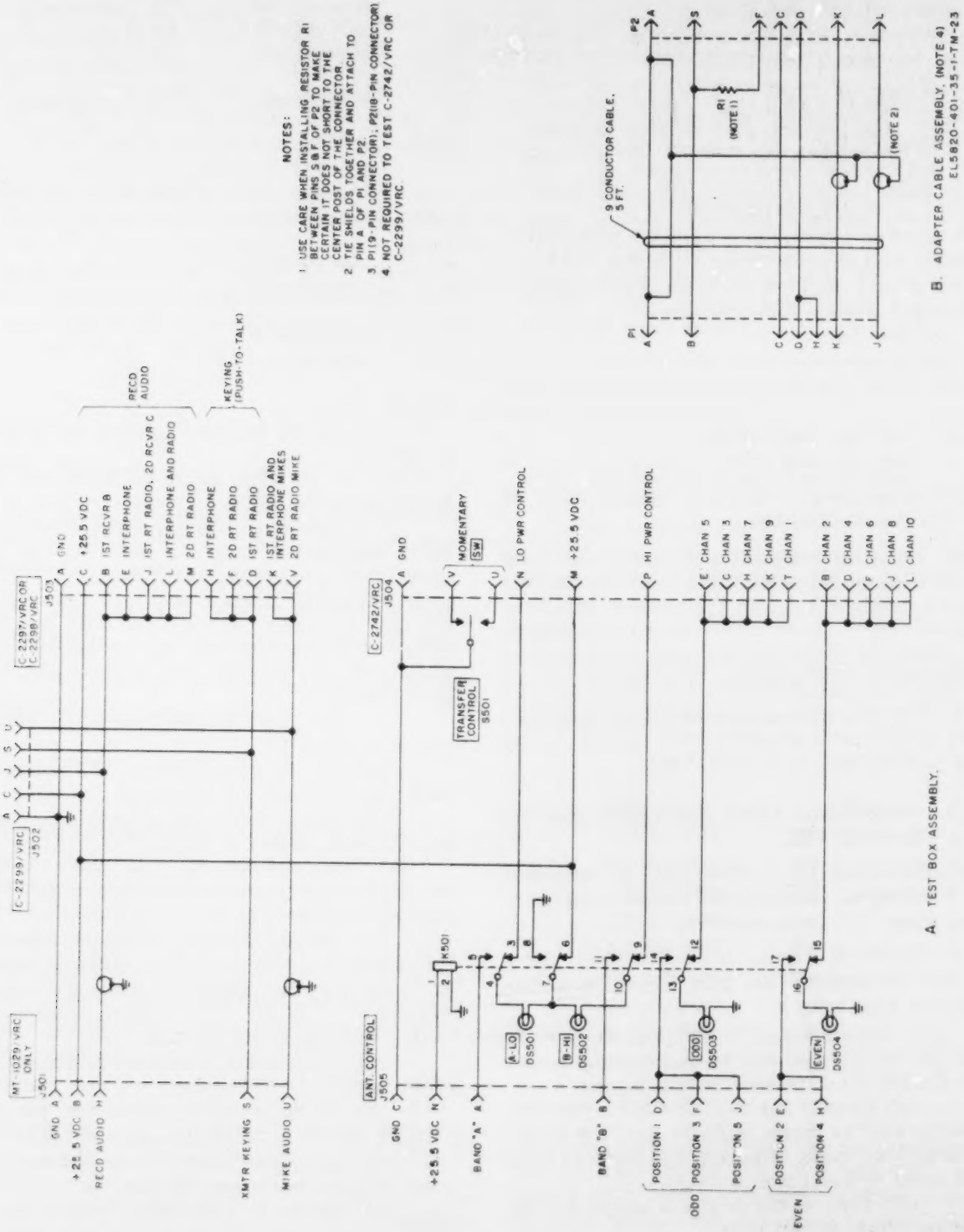


Figure 2-4. Wiring diagram of test box and adapter cable assembly.

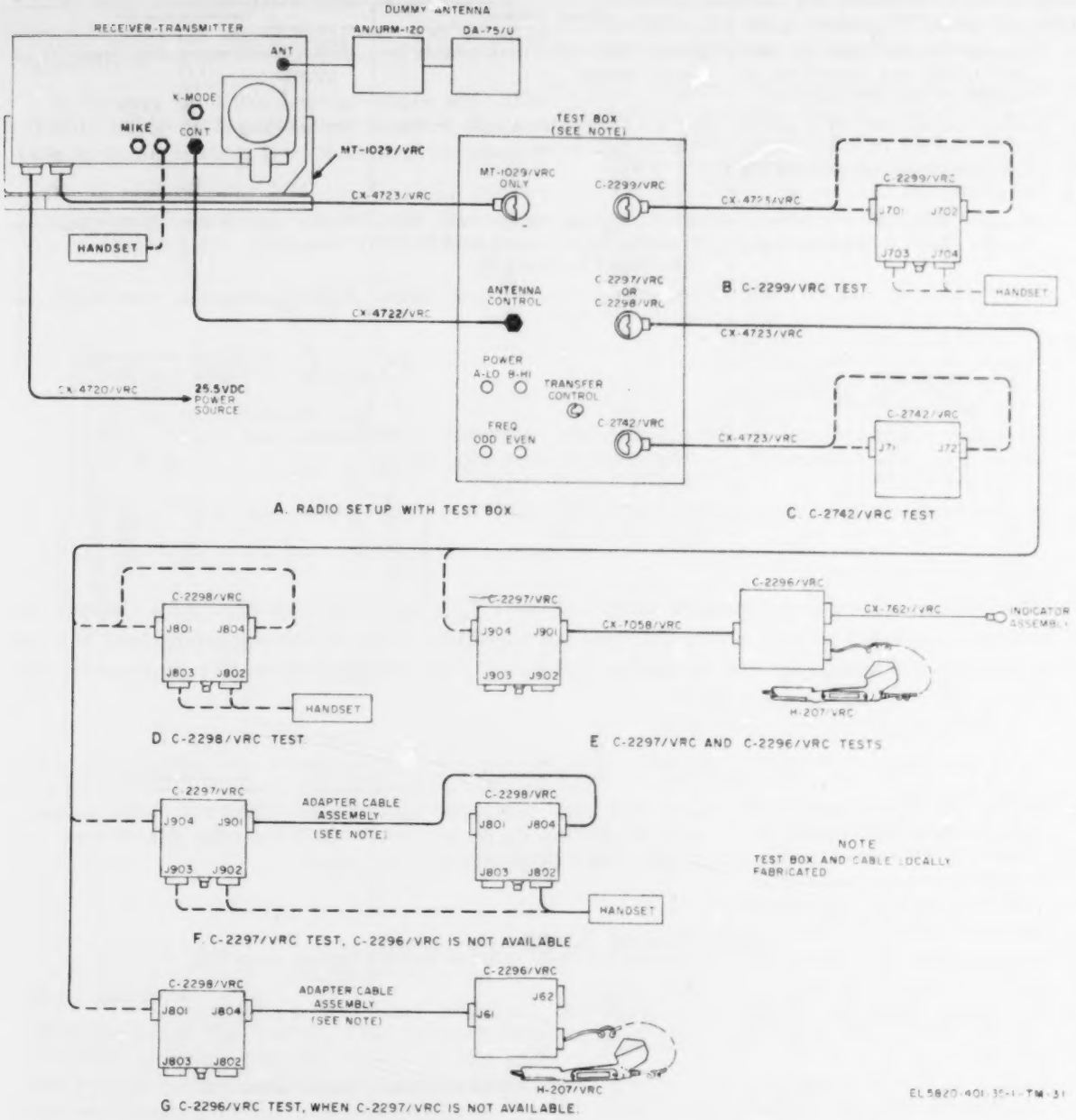


Figure 2–5. Test setup for C–2742/VRC and C–2299/VRC, using test box.

b. Performance Check and Troubleshooting C–2742/VRC Using RT–246(*)/VRC (fig. 2–1). Connect the equipment as explained in *a*(1) above. Perform the operations in the sequence given and the indicated corrective measures when the normal indications are not obtained. Relay K71 replacement procedures are given in paragraph 2–7*b*.

Action	Normal indication	Corrective measure
1 Operate C–2742/VRC PWR switch LO. If CONTROL indicator does not light, momentarily operate toggle switch SW.	The C–2742/VRC CONTROL indicator should light and radio should be turned on.	If radio is turned on, replace indicator lamp DS71 and relay K71, in turn. If radio is not turned on, higher maintenance level repair is required.

Action	Normal indication	Corrective measure
2 Using the handset, key the RT-246(*)/VRC and observe the indication on the AN/URM-120.	The AN/URM-120 should indicate low output power.	Higher maintenance level repair is required.
3 Operate C-2742/VRC PWR switch to HI, key the RT-246(*)/VRC, and observe the indication on the AN/URM-120.	The AN/URM-120 should indicate high output power.	Replace relay K71.
4 Operate C-2742/VRC PWR switch to OFF. Reset to LO after test.	The C-2742/VRC CONTROL indicator should go out and RT-246(*)/VRC should be turned off.	Higher maintenance level repair required.
5 Set C-2742/VRC CHAN SEL switch to each position, in turn. Wait for each selected channel to appear on the RT-246(*)/VRC before changing the switch to the next position.	Each selected channel should appear on the RT-246(*)/VRC.	Higher maintenance level repair required.
6 Momentarily connect a jumper wire between pins V and A (ground) of connector J72.	The C-2742/VRC CONTROL indicator should go out (indicating relay K71 is locked operated).	Replace relay K71.
7 Momentarily operate toggle switch SW.	The C-2742/VRC CONTROL indicator should light.	Replace relay K71.

c. Performance Check and Troubleshooting C-2742/VRC Using Test Box (fig. 2-5). Connect the equipment as explained in *a*(2) above. Perform the operations given in the following chart and the indicated corrective measures when the normal indication is not obtained. Relay K71 replacement procedures are given in paragraph 2-7*b*.

Action	Normal indication	Corrective measure
1 Operate receiver-transmitter POWER switch to ON. Operate C-2742/VRC PWR switch to LO. If CONTROL indicator on C-2742/VRC does not light, momentarily operate toggle switch SW.	The C-2742/VRC CONTROL indicator should light. On the test box, A-LO indicator should light.	Replace CONTROL indicator lamp DS71 and relay K71, in turn.
2 Operate C-2742/VRC PWR switch to HI.	On the test box, B-HI indicator should light.	Replace relay K71.
3 Momentarily operate the test box TRANSFER control switch to the left.	The C-2742/VRC CONTROL indicator should go out.	Replace relay K71.
4 Momentarily operate C-2742/VRC toggle switch SW.	The C-2742/VRC CONTROL indicator should light.	Replace relay K71.
5 Operate C-2742/VRC CHAN SEL switch to each position, in turn.	The test box ODD indicator should light on positions 1, 3, 5, 7, and 9. The test box EVEN indicator should light on positions 2, 4, 6, 8, and 10.	Higher maintenance level repair rerequired.
6 Remove connection of CX-4723/VRC from J71 of C-2742/VRC and connect to J72.	On the test box, B-HI indicator should light.	Replace relay K71.
7 Momentarily operate test box TRANSFER CONTROL switch to right.	The C-2742/VRC CONTROL indicator should go out and test box B-HI indicator should go out.	Replace relay K71.
8 Repeat procedures in steps 4 and 5 above.	Same indications as given in steps 4 and 5 above.	Same measures as given in steps 4 and 5 above.

2-7. Repair of C-2742/VRC

Repair parts for the C-2742/VRC are listed in appendix B.

a. Replace front panel control knobs and CONTROL indicator lamp DS71 as required. Tighten the locknuts holding the knobs and receptacles.

b. To replace relay K71 (B, fig. 2-6), remove the back cover from the box. Unscrew the captive screws holding the relay and remove the relay. Carefully position the replacement relay pins in line with the relay receptacle, press the relay in place and tighten the captive screws.

c. Inspect the parts inside the box for loose parts and damaged wiring; tighten all screws and nuts. Before replacing the back cover, apply a light coating of insulating silicon compound (FSN 6850-880-7616), or equal, to the preformed packing in the back cover. Replace the back cover and tighten the captive screws.

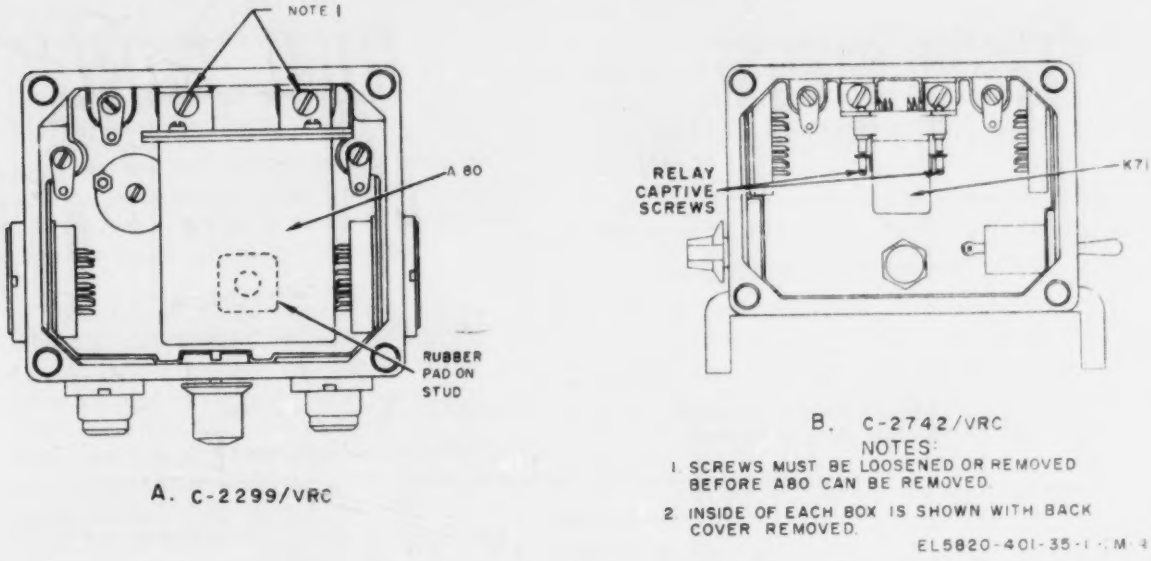


Figure 2-6. Internal views of C-2299/VRC and C-2742/VRC.

Section III. DEPOT MAINTENANCE

2-8. General

Maintenance of the C-2742/VRC at depot level facilities includes complete repair of the unit and overhaul as required. It also includes checking the performance of the repaired equipment for conformance with the depot overhaul standards.

2-9. Test Equipment and Test Facilities Required

a. Test Equipment.

(1) Multimeter TS-325B/U.

(2) Power Supply PP-1104/G.

b. Test Facility. To facilitate connection to C-2742/VRC circuits through connectors J71 and J72, fabricate two test cables No. 3 as shown in figure 2-7. Use a male connector (FSN 5935-815-2325) from Cable Assembly, Special Purpose, Electrical CX-4723/VRC.

2-10. Troubleshooting and Repair

a. Troubleshooting.

(1) To test the C-2742/VRC before troubleshooting and after repair, use procedures given in paragraph 2-11.

(2) Use TS-352B/U to make resistance and continuity measurements of C-2742/VRC (figs. 2-2 and 2-3). Following are typical resistance values (±10 percent) of resistive circuits.

(*a*) Between pin M of J71 or J72 and ground, measure 110 ohms (DS71 and CR72).

(*b*) Between pin M of J72 and either U

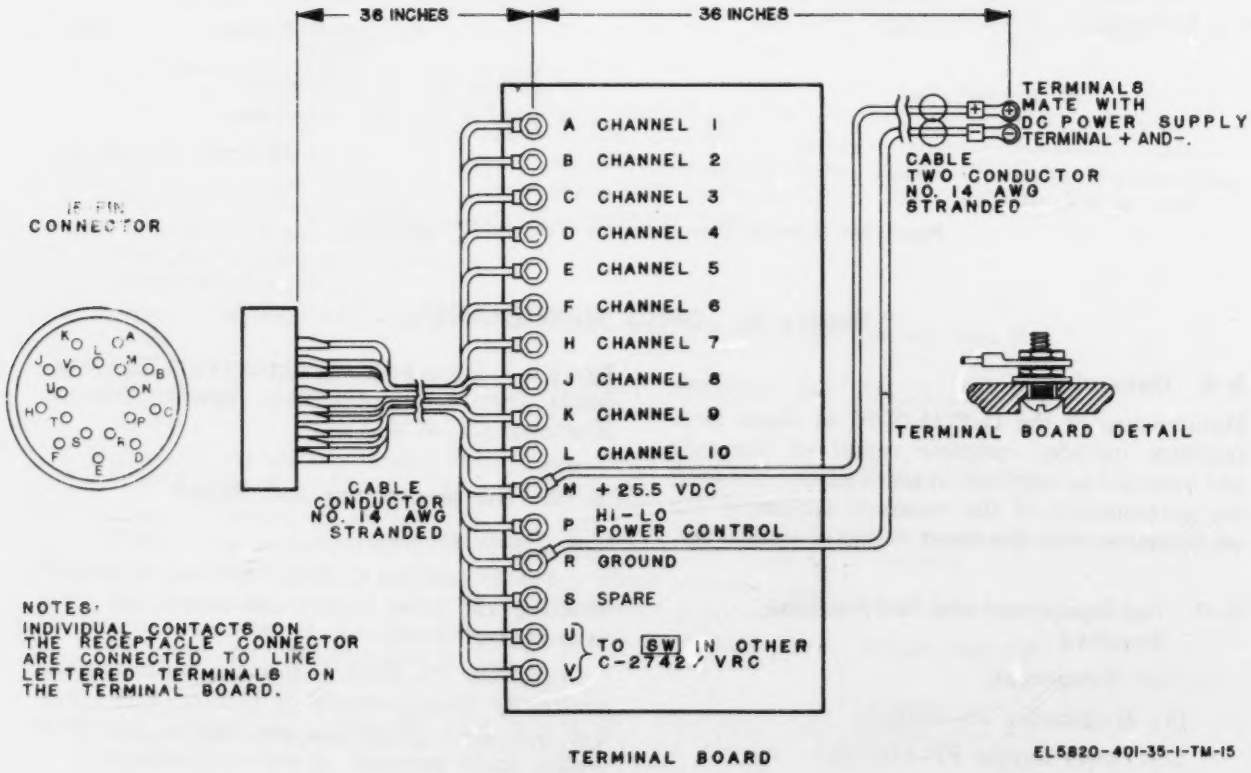


Figure 2-7. Fabrication details for test cable No. 3 for use with CX-2742/VRC.

or V of J71, measure 1,110 ohms (single winding of K71).

(*c*) Between pin U of J71 and pin U of J72, measure 2,200 ohms (both windings of K71).

b. Repair. Repair parts for the C-2742/VRC and parts location illustrations are provided in appendix B. Replacement of relay K71 is discussed in paragraph 2-7. After replacement of a part, make sure that the mounting screws and locknuts are tightened securely. Before replacing the back cover, apply a light coating of insulating silicon compound (FSN 6850-880-7616), or equal, to the preformed packing in the cover.

2-11. Depot Overhaul Standards—Performance Tests

The tests on repaired equipment are designed to measure the performance capability of the equipment. Equipment that is returned to stock should meet the standards given in the tests.

NOTE

The depot overhaul standards (*c* below) should not be used to test the performance of *new* equipment; that is, equipment that has not been repaired or rebuilt. Such equipment should be tested for conformance with the electrical and operational tests cited in MIL-C-55127(EL) under which the equipment was manufactured including any waivers and/or changes to the specification which were imposed upon or granted to the particular manufacturer of the equipment. For such information, address correspondence to Commander, US Army Electronics Command, ATTN: AMSEL-PE-EC, Fort Monmouth, N.J. 07703.

a. Applicable References.

(1) *Repair standards.* Applicable procedures of the depots performing the tests and general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirement for testing the C-2742/VRC.

(2) *Modification work orders.* Perform all modification work orders (MWO's) applicable to the C-2742/VRC before making the tests of the C-2742/VRC. DA Pam 310-7 lists all current MWO's.

b. Test Equipment and Test Cables Required. The required items are given in paragraph 2-9.

c. Depot Overhaul Standards.

(1) *Test setup* (figs. 2-7 and 2-8).

(*a*) Connect one test cable No. 3 to J1 and another test cable No. 3 to J2 of C-2742/VRC.

(*b*) Connect the PP-1104/G to terminals M (+) and A (−) of test cable No. 3 connected to J71.

(*c*) Adjust the output of the power supply to 25.5 volts.

(2) *Procedure.* Perform the operations in the sequence given in the following chart. The required performance standards are indicated.

Step No.	Action	Performance standard
1	Operate C-2742/VRC toggle switch SW momentarily	CONTROL indicator should light.
2	*a.* Adjust TS-352B/U to measure 50 volts dc and connect the negative lead to terminal A (ground) of connector J72.	*a.* None.
	b. Rotate C-2742/VRC CHAN SEL switch to each position in turn. At each position, connect TS-352B/U positive lead to following pins of each test cable: *CHAN SEL switch position* — *J1 and J2 pins* 1 — T 2 through 10 — B through L	*b.* At each indicated position of CHAN SEL switch, power supply voltage should be obtained at associated test cable terminal.
3	Adjust TS-352B/U to measure resistance (RX1). Connect the test leads between pins S (spare) of J71 and J72.	TS-352B/U should indicate continuity (0 ohm).
4	Connect one test lead between pin A of J71 and other test lead as indicated in steps 5, 6, and 7.	None.
5	Connect TS-352B/U to pin N of J1. Set C-2742/VRC PWR switch to OFF.	TS-352B/U should indicate infinity (open).
6	Set PWR switch to LO	TS-352B/U should indicate continuity (0 ohm).
7	Set PWR switch to HI and connect TS-352B/U to pin P of J1 and J2, in turn.	TS-352B/U should indicate continuity.

Step No.	Action	Performance standard
8	Connect a jumper wire momentarily between pins A and V of J72.	C-2742/VRC CONTROL indicator should go out.
9	Operate C-2742/VRC toggle switch SW momentarily	CONTROL indicator should light.
10	Connect a jumper wire momentarily between pin A and, in turn, pins V and U of J72.	CONTROL indicator should go out at pin V and on again at pin U.
11	Connect a jumper wire momentarily between pin A and, in turn, pins U and V of J71.	CONTROL indicator should go out at pin U and on again at pin V.

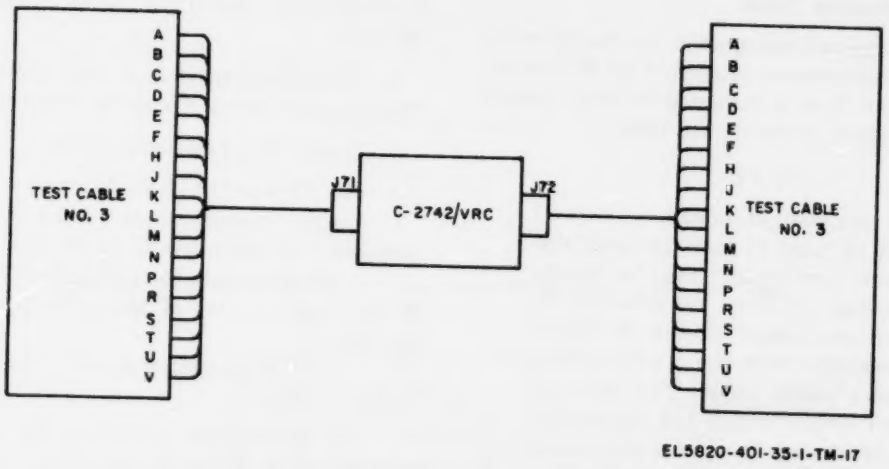


Figure 2-8. Connection of test cables No. 3 to C-2742/VRC.

CHAPTER 3

CONTROL, RADIO SET C-2299/VRC

Section I. CIRCUIT FUNCTIONING

3-1. System Application of C-2299/VRC (fig. 3-1)

The C-2299/VRC is used between receiver-transmitters of Radio Sets AN/VRC-49 and AN/VRC-45 to provide automatic retransmission of signals between radio sets that are too far apart to communicate directly with each other.

a. Receiver-Transmitter No. 1 and terminal radio No. 2 operate on one frequency (F1), and receiver-transmitter No. 2 and terminal radio No. 4 operate on another frequency (F2). For retransmission operation, the radios in the system must operate on squelch mode.

b. When the C-2299/VRC RETRANS switch is set to ON, the retransmission of signals and keying control are automatically passed through the C-2299/VRC to the retransmission site receiver-transmitters. When the C-2299/VRC RETRANS switch is set to OFF, the user has control of the two receiver-transmitters from the audio accessories connected to the C-2299/VRC. In position 1 of RAD TRANS switch, receiver-transmitter No. 1 is controlled; in position 2 of RAD TRANS switch, receiver-transmitter No. 2 is controlled.

c. Audio accessories can be connected to the C-2299/VRC to enable the radio user to communicate through the retransmission site receiver-transmitters with the terminal radios. When the C-2299/VRC RETRANS switch is set to ON, the radio user cannot communicate with the terminal radios, but can hear the transmission occurring between the terminal radios.

d. However, when the C-2299/VRC is connected to the AM-1780/VRC of the radio-intercom system the receiving circuits of the receiver-transmitters No. 1 and 2 are not available at the C-2299/VRC. Thus, radio communication is conducted from the crewmember control boxes. Also, for the retransmission operation, the INSTALLATION switch of the AM-1780/VRC is set to RETRANS position. Under these conditions, the retransmission signals are available on the ALL position of the crewmember control boxes.

3-2. Control, Radio Set C-2299/VRC, Circuit Functioning (fig. 3-2)

In the following discussion, the first receiver-transmitter is identified as receiver-transmitter No. 1 in figure 3-1 and the second receiver-transmitter is identified as receiver-transmitter No. 2 in figure 3-1. Connections from the C-2299/VRC are made direct to the radio mounts MT-1029/VRC or through the AM-1780/VRC to the radio mounts. Figure 3-3 is wiring diagram of C-2299/VRC.

a. When RETRANS switch W701S702 is in OFF position, remote control of the receiver-transmitters from the C-2299/VRC is possible. Resistors R702 and R703 terminate the receiver-transmitters monitor amplifier output when RETRANS switch W701S702 is in OFF position to provide the same output impedance for the amplifiers as when the switch is in ON position. When RETRANS switch W701S701 is in OFF position, RAD TRANS switch W701S701 selects the receiver-transmitter to be controlled. Position 1 selects the receiver-transmitter connected to W701J701; position 2 selects the receiver-transmitter connected to W701J702.

(1) When RAD TRANS switch W701S701 is at position 1, muted audio from the first receiver-transmitter is fed from terminal J of W701J701, through switch W701S701 and VOLUME control R701, to terminals B and E of audio accessory connectors W701J703 and W701J704, respectively. When W701S702 is in OFF position, a push-to-talk switch of an audio accessory connected to W701J703 or W701J704 can control the first receiver-transmitter keying relay through terminal C of the connectors, switch W701S701, and terminals S and L of connector W701J701. After the

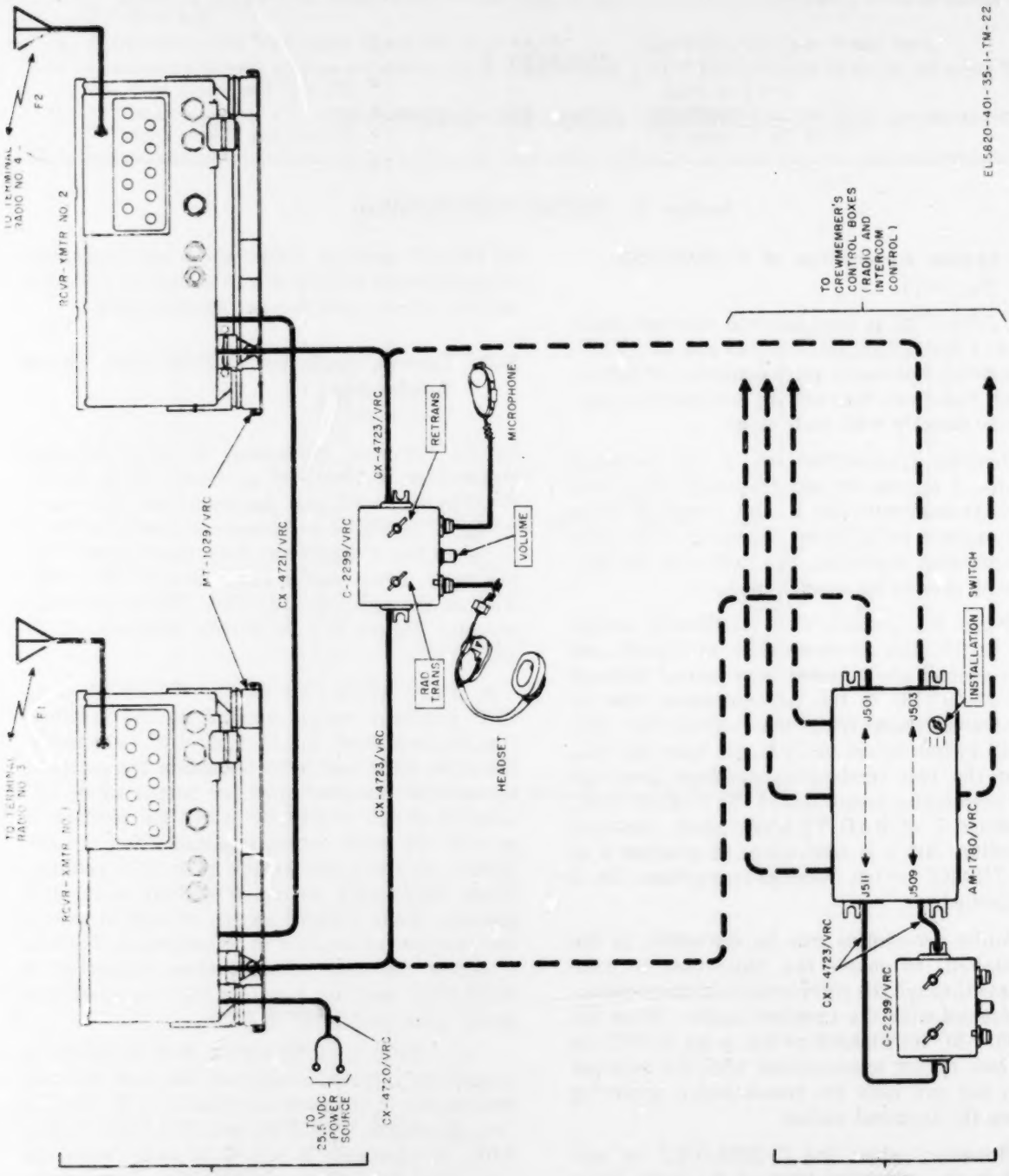


Figure 3-1. System application of C-2299/VRC.

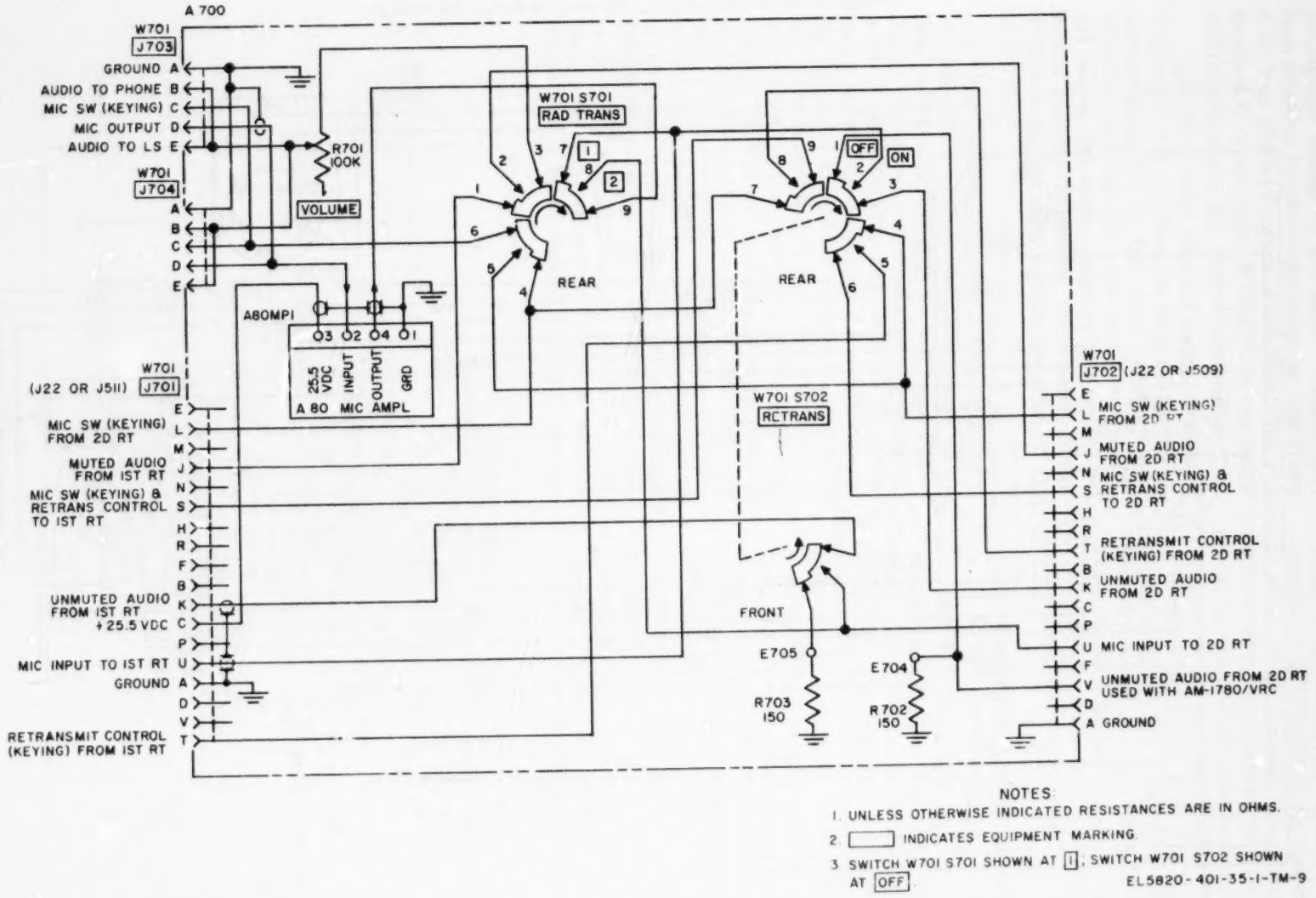


Figure 3–2. Control, Radio Set C–2299/VRC, schematic diagram.

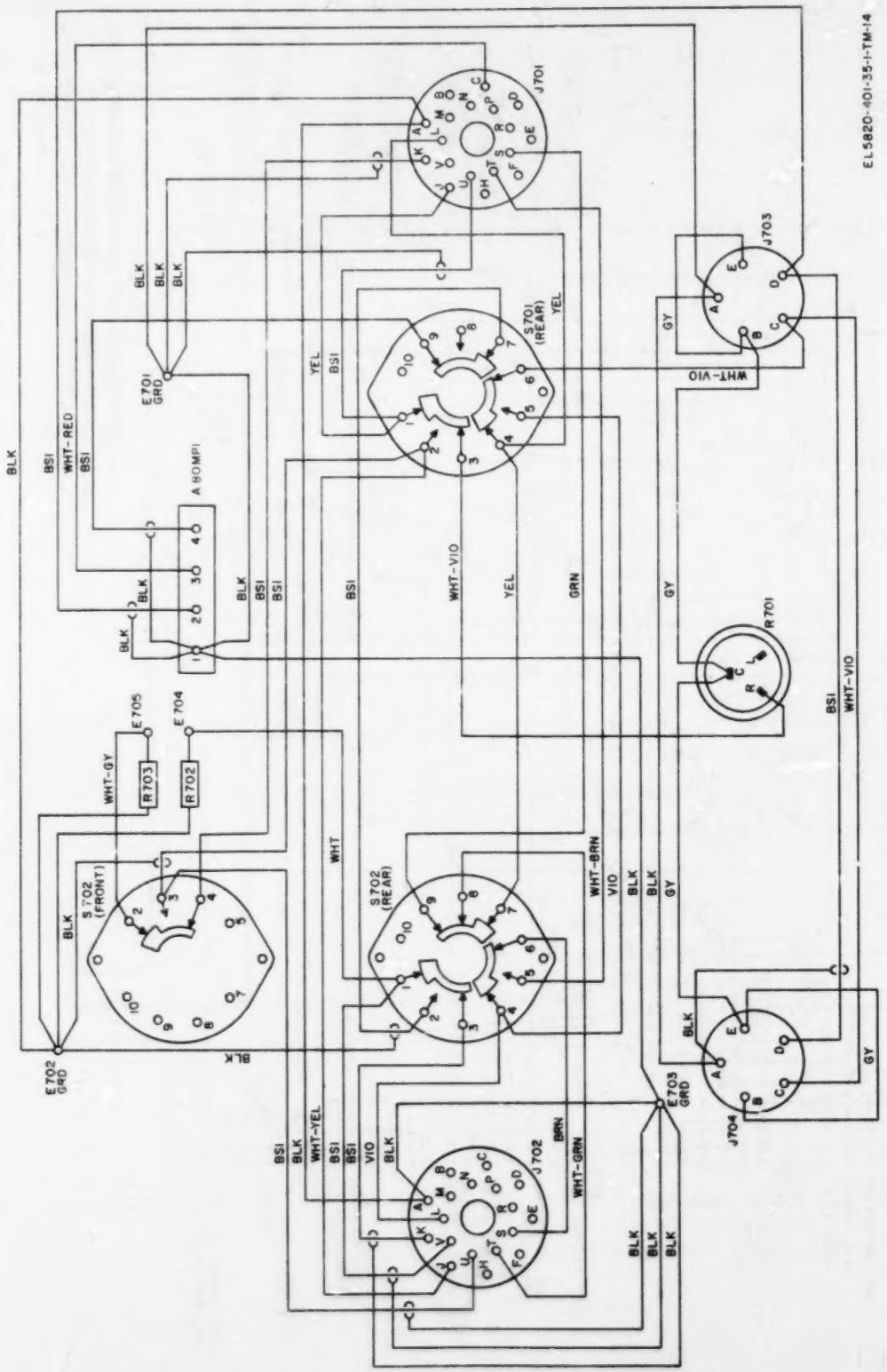


Figure 3-3. Control, Radio Set C-2299/VRC, wiring diagram.

microphone output of the audio accessory has been amplified in microphone amplifier A80 (para 3-3), it is applied through switch W701S701 and terminal U of connector W701J701 to the transmitting circuits of the receiver-transmitter.

(2) When RAD TRANS switch W701S701 is at position 2, muted audio from the second receiver-transmitter is fed from terminal J of W701J702 through the same circuit as given in (1) above. The audio accessory will control the second receiver-transmitter connected to W701-J702 through the same circuits described in (1) above.

b. When RETRANS switch W701S702 is in ON position, the monitor amplifier output of the first receiver-transmitter is fed to the microphone line of the second receiver-transmitter from terminal K of W701J701 and terminal U of connector W701J702. Similarly, the monitor amplifier output of the second receiver-transmitter is fed to the microphone line of the first receiver-transmitter from terminal K of W701J702 to terminal U of W701J701. When a keying signal is received (by operation of squelch and retransmit relays) by the first receiver-transmitter, the second receiver-transmitter will be keyed through a circuit from terminal T of W701J701 through W701S702, to terminals S of W701J702. Similarly, when a keying signal is received by the second receiver-transmitter, the first receiver-transmitter is keyed through a circuit from terminal T of W701J702, through W701S702, to terminal S of W701S701. An operator can listen to either of the channels being used for retransmission but cannot key either transmitter. However, he can modulate the keyed transmitter depending on the position of RAD TRANS switch W701S701. Similarly, when the C-2299/VRC is connected to the AM-1780/VRC (fig. 3-1), crewmembers cannot key the receiver-transmitters because the INSTALLATION switch on the AM-1780/VRC is set to RETRANS position which opens the keying control lines.

3-3. Microphone Amplifier Assembly A80, Circuit Functioning
(fig. 3-4)

Microphone amplifier assembly A80 is a three-stage, direct-coupled amplifier used in the C-2299/VRC (fig. 3-2) and also in control boxes of Intercommunication Set AN/VIC-1(V) (TM 11-5830-340-12): C-2296/VRC, C-2297/VRC, and C-2298/VRC. The A80 receives its input signal from the dynamic microphone connected to the control box. Its output is fed to the speech amplifier of the receiver-transmitters or to the interphone amplifier of the AM-1780/VRC.

a. The input from the dynamic microphone is fed through an RF filter network composed of capacitors C81 and C82 and inductor L81; through impedance-matching resistor R81 and coupling capacitor C83 to the base of transistor

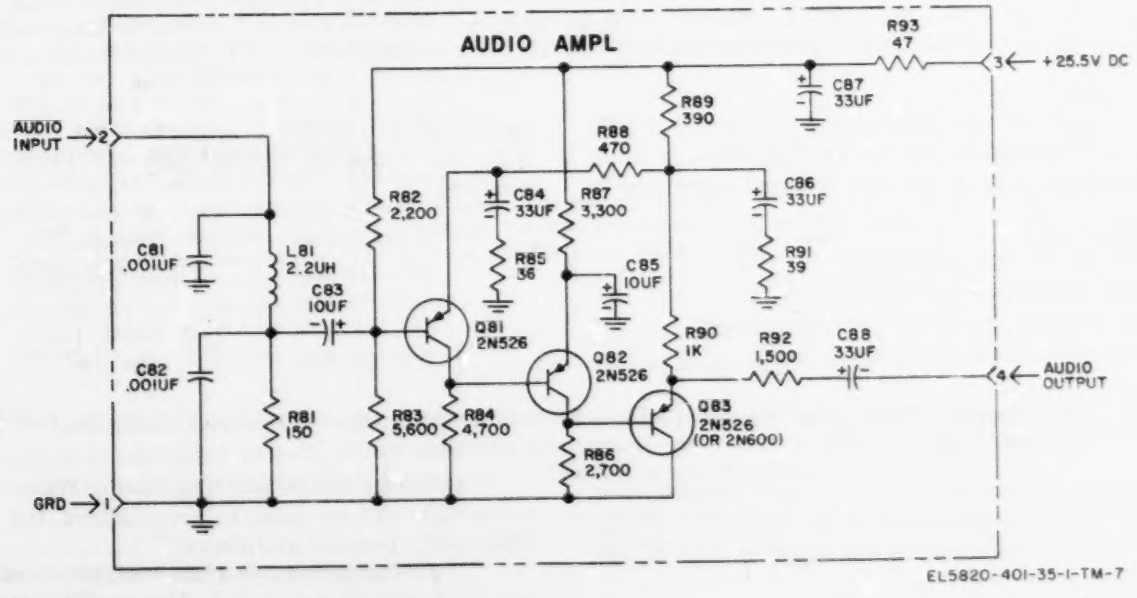


Figure 3-4. Microphone amplifier assembly A80, schematic diagram.

Q81. The amplified output of transistor Q81 is direct-coupled to the base of transistor Q82 which, in turn, applies the signal to the base of transistor Q83. Resistor R92 reduces the level of the signal from transistor Q83. Capacitor C88 is a coupling capacitor.

b. The dc voltage for the A80 is fed from the 25.5-volt dc power supply through filter network consisting of resistor R93 and capacitor C87. Resistors R82 and R83 set the base voltage on transistor Q81. Resistors R84 and R86 are load resistors for transistors Q81 and Q82, respectively. Resistors R87, R98, and R90 are bias resistors for transistors Q82 and Q83. Capacitor C85 is a high audiofrequency bypass capacitor.

c. The microphone amplifier uses degenerative ac and dc feedback to stabilize the operation of the transistors. Capacitors C84 and C86 and resistors R85, R88, and R91 form the ac feedback circuit. Resistor R88 is the principle component of the dc feedback circuit from the emitter of transistor Q83 to the emitter of transistor Q81.

Section II. DIRECT SUPPORT MAINTENANCE

3-4. General

The C-2299/VRC is maintained at organizational (TM 11-5820-401-12), direct support, and depot maintenance levels. Repair parts for the C-2299/VRC are listed in appendix C.

3-5. Test Equipment and Test Facilities Required

a. Test Equipment and Tools.

Item	*Federal stock No.*	*Publication*
Receiver-Transmitter, Radio RT-246(*)/VRC (1 ea)	5820-892-0623	TM 11-5820-401-12
or		
Receiver-Transmitter, Radio RT-524/*)/VRC (1 ea)	5820-892-0622	TM 11-5820-401-12
Mounting MT-1029/VRC (2 ea)	5820-893-1323	TM 11-5820-401-12
Microphone, Dynamic M-80/U, or equal	5965-179-7762	
Headset, Electrical H-140A/U, or equal	5965-892-1010	TM 11-5965-260-15P
Cable Assembly, Power, Electrical CX-4720/VRC (10 ft) (1 ea)	5995-823-2726	SB 11-131
Cable Assembly, Power, Electrical CX-4721/VRC (4 ft) (1 ea)	5995-823-2913	SB 11-131
Cable Assembly, Special Purpose, Electrical CX-4723/VRC (5 ft) (2 ea).	5995-823-2833	SB 11-131

(1) Multimeter TS-352B/U.

(2) Toolkit, Electronic Equipment TK-100/G.

b. Test Facilities. Either test facility in (1) or (2) below may be used to check the performance of the C-2299/VRC.

(1) *Radio set facility.*

(2) *Test box facility* (figs. 2-4 and 2-5). To use the test box to test the C-2299/VRC, refer to paragraph 2-4*b*(2) for the required items and to paragraph 2-5 to fabricate the test box. In addition, the following dummy antenna items are required.

Item	*Federal stock No.*	*Publication*
Wattmeter AN/URM-120 (1 ea)	6625-813-8430	TM 11-6625-446-15
Dummy Load, Electrical DA-75/U (1 ea)	6625-177-1639	
Cable Assembly, RF CG-1773/U (1½ ft) (1 ea)	5995-889-0830	SB 11-131
Adapter, Connector UG-201A/U (1 ea)	5935-259-0205	

3-6. Performance Check and Troubleshooting C-2299/VRC

Use the procedures in *b* or *c* below to troubleshoot and check the performance of the C-2299/VRC. Set up the equipment as explained in *a*(1) or (2) below.

a. Test Setup. Connect the C-2299/VRC either to the radio sets ((1) below) or to the test box ((2) below).

(1) *Using radio sets* (fig. 3-1). When the radio sets will be used to troubleshoot the C-2299/VRC, proceed as follows.

(*a*) Connect the C-2299/VRC to the radio sets as shown in figure 3-1. The required items are listed in paragraph 3-5*b*(1).

(*b*) Turn on the power supply and adjust its output to 25.5 volts.

(*c*) Set the C-2299/VRC RAD TRANS switch to OFF.

(*d*) Arrange for the retransmission site radios to operate on two frequencies (F1 and F2) at least 10 MHz apart and to operate in satisfactory squelch mode between the terminal radios and each retransmission site radio.

(*e*) Connect the audio accessories to the C-2299/VRC.

(*f*) Proceed to *b* below to troubleshoot and test the performance of the C-2299/VRC.

(2) *Using test box* (fig. 2-5). When the test box will be used to troubleshoot the C-2299/VRC, proceed as follows:

(*a*) Connect the test box to the receiver-transmitter and J701 of C-2299/VRC as shown in figure 2-5. The required items are listed in paragraph 3-5*b*(2).

(*b*) Turn on adjust the output of the power supply to 25.5 volts.

(*c*) Turn on the receiver-transmitter and adjust it to operate on any convenient frequency. Note the AN/URM-120 indication for low output power transmission.

(*d*) Proceed to *c* below to troubleshoot and test the performance of the C-2299/VRC.

b. Performance Check and Troubleshooting C-2299/VRC Using Retransmission Radio Sets (fig. 3-1). Connect the equipment and adjust the retransmission site radios as explained in *a*(1) above. Perform the operations in the sequence given below and the indicated corrective measures when normal indications are not obtained.

Action	Normal indication	Corrective measure
1 Set C-2299/VRC RETRANS switch to OFF. Adjust VOLUME controls of receiver-transmitters to midposition.	None	None.
2 Set C-2299/VRC RAD TRANS switch to position 1. Communicate with terminal radio, using microphone. Adjust C-2299/VRC VOLUME control as required during radio reception.	Receiver-transmitter No. 1 is keyed and sidetone of transmission is heard on loudspeaker of receiver-transmitter and on headset. VOLUME control regulates level of signal smoothly.	If sidetone is not heard on receiver-transmitter loudspeaker, replace C-2299/VRC microphone amplifier module A80 (para 3-7*b*). If receiver-transmitter is not keyed or sidetone is not heard on C-2299/VRC headset, higher maintenance level repair required.
3 Set C-2299/VRC RAD TRANS switch to position 2. Repeat operations given in step 2 above.	Same indications given in step No. 2 above, except receiver-transmitter No. 2 is keyed.	Higher maintenance level repair required.
4 Set C-2299/VRC RETRANS switch to ON. Set RAD TRANS switch to positions 1 and 2, in turn. At each position, operate microphone switch to key each radio.	Radios should not respond to keying operation.	Higher maintenance level repair required.
5 Reset RETRANS switch to OFF	None	None.
6 Communicate with each terminal radio, in turn (steps 2 and 3 above), and advise them to communicate directly with each other through the retransmission site radios; then set C-2299/VRC RETRANS switch to ON.	Communication proceeds automatically through retransmission site radios from each terminal radio.	Higher maintenance level repair required.

c. Performance Check and Troubleshooting C-2299/VRC Using Test Box (fig. 2-5). Connect the equipment as explained in *a*(2) above. Perform the operations given in the following chart and the indicated corrective measures when the normal indication is not obtained:

Action	Normal indication	Corrective measure
1 Set C-2299/VRC RETRANS switch to OFF. Adjust VOLUME control of receiver-transmitter to midposition.	None	None.

Action	Normal indication	Corrective measure
2 Connect handset to J703 of C-2299/VRC; set RAD TRANS switch to position 1.	Receiver-transmitter should be keyed (AN/URM-120 should indicate low power).	If sidetone is not heard on receiver-transmitter loudspeaker, replace microphone amplifier module A80 (para 3-7*b*).
Key and talk into microphone. Adjust C-2299/VRC VOLUME control as required.	Transmitted signal should be heard on loudspeaker of receiver-transmitter and on handset.	
3 Connect handset to J704 and repeat operations given in step 2 above.	Same as step 2 above	Same as step 2 above.
4 Disconnect CX-4723/VRC from J701 of C-2299/VRC and connect to J702.	None	None.
5 Set RAD TRANS switch to position 2. Use handset to key receiver-transmitter.	Receiver-transmitter should be keyed and rushing noise should be heard.	Higher maintenance level repair required.
6 Disconnect CX-4723/VRC and handset from C-2299/VRC. Make continuity measurements in steps 7 and 8 below.	None	None.
7 Set C-2299/VRC RETRANS switch to OFF. Connect TS-352/U, adjusted to measure RX1, to pins of following receptacles:		Higher maintenance level repair required.
J701 *J702* *a.* K and A	*a.* 150 ohms.	
b. ..... K and A	*b.* 150 ohms.	
c. ..... V and A	*c.* 150 ohms.	
8 Set C-2299/VRC RETRANS switch to ON. Connect TS-352B/U, adjusted to measure RX1, to pins of following receptacles.	TS-352B/U should indicate continuity for each measurement.	Higher maintenance level repair required.
J701 *J702* *a.* K ..... U *b.* U ..... K *c.* T ..... S *d.* S ..... T *e.* S and L *f.* ..... S and L		

3-7. Repair of C-2299/VRC

Repair parts for the C-2299/VRC are listed in appendix C.

a. Replace the front panel knobs as required. Check to see that the nuts holding the knobs and the locknuts holding the cable receptacles are secured tightly.

b. To replace microphone amplifier module A80 (A, fig. 2-6), remove the back cover from the box. Loosen the screws holding the module bracket and carefully remove the module. Check to see that the rubber pad is fastened to the stud under the module. A similar pad should be fastened to the cover. (The pads prevent the module from vibrating during motion of the vehicle.) Carefully position the replacement module pins in line with the receptacle, press the module in place, and tighten the mounting bracket screws.

c. Inspect the parts inside the box for loose parts and damaged wiring; tighten all screws and nuts. Before replacing the back cover, apply a light coating of insulating silicon compound (FSN 6850-880-7616), or equal, to the preformed packing in the back cover. Replace the back cover and tighten the captive screws.

Section III. DEPOT MAINTENANCE

3-8. General

Maintenance of the C-2299/VRC at depot level facilities includes complete repair of the unit and overhaul as required. It also includes checking the performance of the repaired equipment

for conformance with the depot overhaul standards.

3-9. Test Equipment and Test Facilities Required

a. Test Equipment.

(1) Multimeter TS-353B/U.

(2) Power Supply PP-1104/G.

(3) Voltmeter, Electronic ME-30(*)/U. (ME-30(*)/U represents all models of the voltmeter.)

(4) Generator, Signal AN/URM-127.

(5) Spectrum Analyzer TS-723B/U.

(6) Oscilloscope AN/USM-281A.

b. Test Facilities.

(1) Test cable No. 1 (2 each), fabricated in accordance with details in figure 3-5.

(2) Test cable No. 2 (2 each), fabricated in accordance with details in figure 3-5.

(3) Resistor, 150 ohms, 2 watts (3 each).

3-10. Performance Check and Troubleshooting Microphone Amplifier Module A80

Refer to figure 3-4 for schematic diagram of A80 and to figures 3-6 and 3-7 for location of parts. The following procedures are performed on the A80 disconnected from the C-2299/VRC:

a. Test Setup. The following test setup will be used to check the performance of the A80 module (*b* below).

(1) Connect the positive terminal of PP-1104/G to terminal 3 and the negative terminal to terminal 1 (ground) of A80.

(2) Connect a 150-ohm resistor to the output of AN/URM-127. Connect the output of AN/URM-127 and the input of ME-30(*)/U to terminals 2 and 1 of A80.

(3) Connect a 150-ohm resistor to output terminals 4 and 1 of A80. Connect the AN/USM-281A to the TS-723B/U OSCILLOSCOPE terminals.

b. Performance Check. Connect the test equipment to A80 as explained in *a* above.

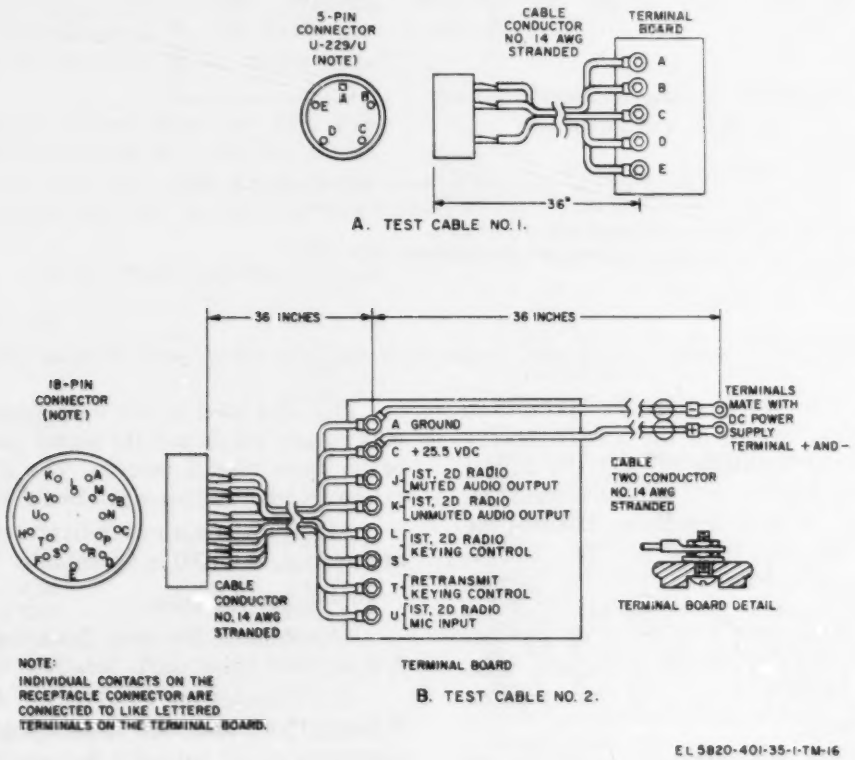
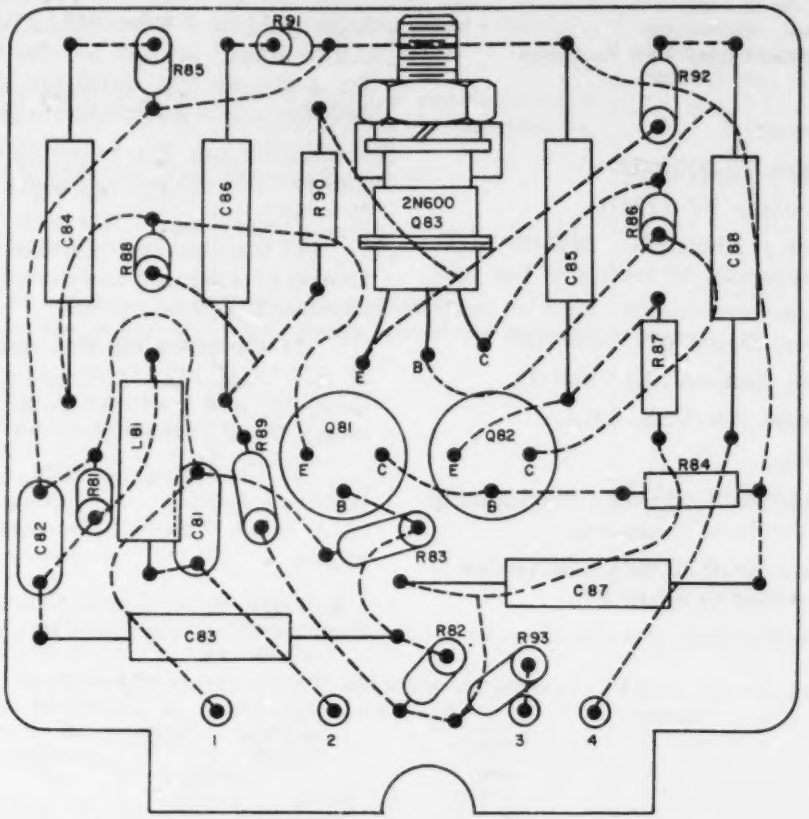


Figure 3-5. Fabrication details for test cables No. 1 and 2.



NOTES:

1. CIRCUIT VIEWED FROM SIDE ON WHICH PARTS ARE MOUNTED.
2. —— PARTS AND PIGTAILS ON FRONT OF BOARD.
3. --- WIRING ON BACK OF BOARD.
4. PREFACE REFERENCE DESIGNATIONS WITH A80A1.

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Figure 3-6. Microphone amplifier A80, printed circuit board assembly A80A1, parts location; earlier version.

(1) Adjust the output of the PP-1104/G to 22 volts. Adjust the output of the AN/URM-127 to 500 Hz and then 3,000 Hz. Adjust the output of each frequency to 0.007 volt ac as measured on the ME-30(*)/U. At each frequency, observe the output voltage by connecting the TS-723B/U METER terminals across the 150-ohm output load resistor (*a*(3) above), and observe the output distortion by connecting the TS-723B/U AF INPUT terminals across the 150-ohm resistor. Also observe the sine wave indication of the signal on the AN/USM-281A.

(2) Repeat the operations in (1) above, except set the output of the PP-1104/G to 25.5 and 30.0 volts, in turn.

(3) The level of the output signal should be 0.22 volt ac ±2 db and the signal distortion should be no more than 2 percent. The sine wave indication on the oscilloscope should be undistorted.

(4) If the required indications in (3) above are normal, the A80 is acceptable.

c. Trouble Isolation.

(1) Remove the cover from the A80. Figures 3-6 and 3-7 show parts location.

(2) Connect the PP-1104/G, AN/URM-127, ME-30(*)/U, and load resistors as explained in *a* above.

(3) Adjust the output of the AN/URM-127U to 1,000 Hz and the signal level at 0.007 as

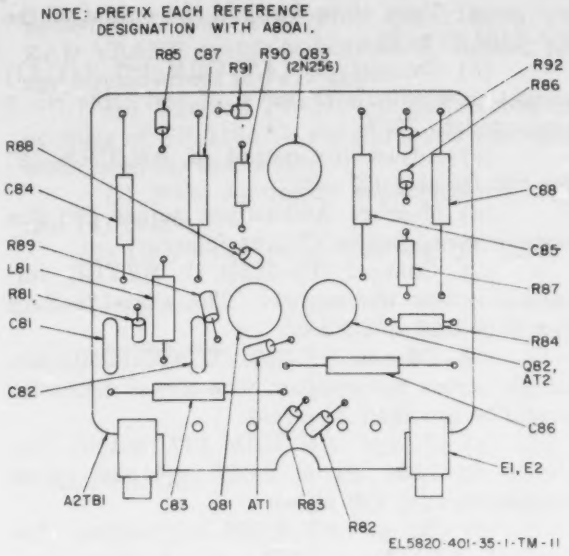

Figure 3-7. Microphone amplifier A80, printed circuit board assembly A80A1, parts location; latest version.

measured on the ME-30(*)/U. Use the ME-30(*)/U to measure the ac signal voltages ((*a*) below). Dc voltage measurements are given in (*b*) below. The voltages given in the charts are typical; wide variations from these values indicate trouble.

(*a*) *Ac signal voltage chart for A80.* The typical ac voltage indications at indicated points of A80 are obtained with test setup given in (2) and (3) above. Use ME-30(*)/U to make the voltage measurements.

Point of measurement	*Ac signal voltage*
Pin 2	0.007
Junction of L81 and C83	0.007
Q81 base	0.007
Q81 emitter	0.006
Q81 collector	0.019
Junction of C84 and R85	0.006
Q82 base	0.019
Q82 emitter	0.007
Q82 collector	2.28
Q83 base	2.28
Q83 emitter	2.26
Q63 collector	0
Junction of R90 and C86	0.82
Junction of C86 and R91	0.08
Junction of R89 and C87	0.001
Junction of R92 and C88	0.23
Pin 4	0.22

(*b*) *Dc voltage chart for A80.* The typical dc voltage indications are indicated points of A80 are obtained with PP-1104/G adjusted to 25.5 volts and connected to pins 3 (+) and 1 (negative ground). Use the TS-352B/U to make the dc voltage measurements.

Point of measurement	*+dc voltage*
Pin 3	25.5
Junction of R93 and R89	24.5
Q83 base	7.4
Q83 emitter	7.7
Q83 collector	0
Q82 base	15.4
Q82 emitter	15.5
Q82 collector	7.4
Q81 base	17.2
Q81 emitter	17.4
A81 collector	15.4

3-11. Troubleshooting and Repair

a. Troubleshooting.

(1) To test the C-2299/VRC before troubleshooting and after repair, use procedures given in paragraph 3-12.

(2) Use TS-352B/U to make continuity and resistance measurements of the C-2299/VRC (figs. 3-2 and 3-3; also steps 7 and 8, para 3-6*c*).

b. Repair. Repair parts for the C-2299/VRC and parts location illustrations are provided in appendix C. Replacement of microphone amplifier module A80 and other parts are explained in paragraph 3-7.

3-12. Depot Overhaul Standards-Performance Tests

Tests on repaired equipment are designed to measure the performance capability of the equipment. Equipment that is returned to stock should meet the standards given in the tests.

NOTE

The depot overhaul standards (*c* below) should not be used to test the performance of *new* equipment; that is, equipment that has not been repaired or rebuilt. Such equipment should be tested for conformance with the electrical and operational tests cited in MIL-C-55126-(EL) under which the equipment was manufactured including any waivers and/or changes to the specification which were imposed upon or granted to the particular manufacturer of the equipment. For such information, address correspondence to Commander, US Army Electronics Command, ATTN: AMSEL-BE-EC, Fort Monmouth, N.J. 07703.

a. Applicable References.

(1) *Repair standards.* Applicable procedures of the depots performing the test and general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirement for testing the C-2299/VRC.

(2) *Modification work orders.* Perform all modification work orders (MWO's) applicable to the C-2299/VRC before making the tests of the C-2299/VRC. DA Pam 310-7 lists all current MWO's.

b. Test Equipment and Materials Required. The required items are listed in paragraph 3-9.

c. Depot Overhaul Standards.

(1) *Test setup* (fig. 3-8).

(*a*) Connect test cables No. 1 and 2 to C-2299/VRC as shown in figure 3-8.

(*b*) Connect a 150-ohm resistor to terminals U and A of each test cable No. 2.

(*c*) Turn off the PP-1104/G and connect its output to terminals C (+) and A (negative, ground) of test cable No. 2 (fig. 3-5) connected to J701.

(*d*) Connect a 150-ohm resistor to the output of AN/URM-127 and use ME-30(*)/U connected across the resistor to measure the output signal level of each test frequency.

(*e*) Proceed to tests ((2) below).

(2) *Audio amplifier performance tests.* Set up the equipment as explained in (1) above.

(*a*) Turn on and adjust the output of the PP-1104/G to 22 volts.

(*b*) Connect the AN/URM-127 ((1)(*d*) above) to terminals D and A of test cable No. 1 connected to J703.

(*c*) Adjust the output of AN/URM-127 for 500 Hz at 0.007 volt.

(*d*) Measure A80 output across 150-ohm resistor connected to J701 as follows:

1. Connect TS-723B/U METER terminals across the resistor. The signal voltage should be 0.22 volt ±2 db.

2. Connect TS-723B/U AF INPUT terminals across the resistor. The signal distortion should be less than 2 percent.

(*e*) Change AN/URM-127 output frequency to 3,000 Hz at 0.007 volt and repeat measurement in (*d*) above.

(*f*) Change AN/URM-127 output frequency to 1,000 Hz at 0.007 volt and repeat measurements in (*d*) above.

(*g*) Adjust the output voltage of PP-1104/G to 30.0 volts and repeat measurements in (*d*) above.

(*h*) Adjust output voltage of PP-1104/G to 25.5 volts and repeat measurements in (*d*) above.

(*i*) Change connection of AN/URM-127 to terminals D and A of J704. Repeat voltage measurement in (*d*)*1* above.

(*j*) Remove connection of TS-723B/U from J701 and connect to 150-ohm resistor con-

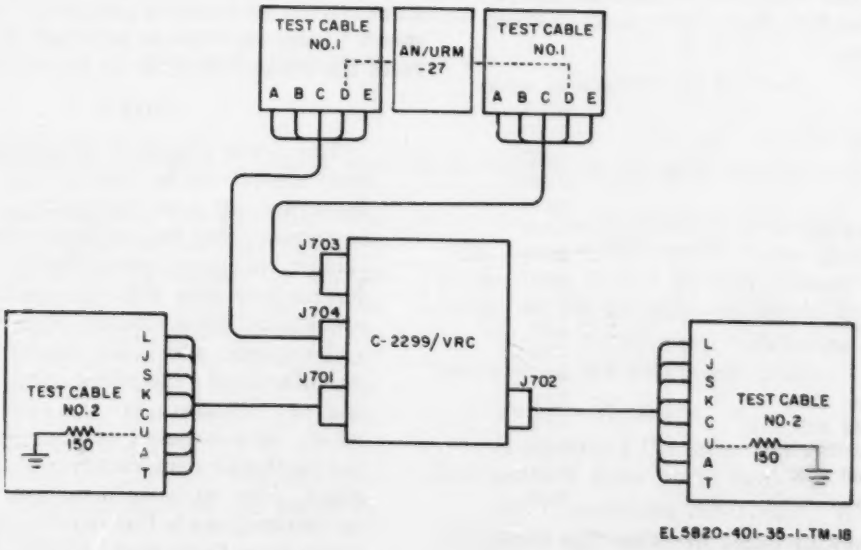

Figure 3-8. Connection of tests cables No. 1 and 2 to C-2299/VRC.

nected to U and A of J702. Set C-2299/VRC RAD TRANS switch to position 2. Repeat voltage measurement in (*d*)*1* above.

(*k*) Turn off PP-1104/G and remove connections of PP-1104/G, resistors, and test equipment from the test cables.

(*l*) Make continuity measurements in (3) and (4) below.

(3) *Continuity tests.* Use the TS-352B/U, adjusted to measure resistance (RX1), to make following circuit continuity measurements. Leave test cables connected to C-2299/VRC (fig. 3-8). Continuity (0 ohm) should be obtained for each terminal-to-terminal measurement, except when 150 ohms is indicated. When no switch/position is given, switches may be set in any position. Before proceeding, set C-2299/VRC VOLUME control fully counterclockwise.

Switch/position	Receptacles/terminals			
	J701	J702	J703	J704
			B and E	
			B	B
			B	E
				B and E
RAD TRANS: 1	L		C	
	L			C
	J		B	
	J			B
RAD TRANS: 2		L	C	
		L		C
		J	B	
		J		B
RETRANS: OFF	L and S			
		L and S		
		K and V		
	K and A (150 ohms)			
		K and A (150 ohms)		
RETRANS: ON	S	T		
	T	S		
	K	U		
	U	K		

(4) *VOLUME control tests.*

(*a*) Connect the TS-352B/U between terminals E of J703 and J of J701.

(*b*) Adjust the TS-723B/U for on-scale ohms indications while rotating the VOLUME control from counterclockwise to clockwise positions.

(*c*) The TS-352B/U should indicate no erratic movement during rotation of the control and should register between 0 and 100,000 ohms (±10 percent).

APPENDIX A

REFERENCES

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U. S. Army Equipment Index of Modification Work Orders.
SB 11-131	Vehicular Radio Sets and Authorized Installations.
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment.
TM 11-5820-401-12	Operator and Organizational Maintenance Manual Including Repair Parts and Special Tools Lists for Radio Sets AN/VRC-12, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48, AN/VRC-49, AN/VRC-54, and AN/VRC-55; Mounting MT-1029 and MT-1898/VRC; Antenna AT-912/VRC; Control, Frequency Selector, and Control, Radio Set C-2299/VRC.
TM 11-5965-260-15P	Operator's, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Headset, Electrical H-140A/U.
TM 11-5965-280-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual, Including Repair Parts and Special Tools List: Handset H-189/GR.
TM 11-5985-262-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tool Lists: Antenna AS-1729/VRC.
TM 11-6130-246-12	Operator and Organizational Maintenance Manual: Power Supply PP-1104C/G (with Instructions for Use as a Battery Charger).
TM 11-6625-366-15	Organizational, DS, GS, and Depot Maintenance Manual: Multimeter TS-352B/U.
TM 11-6625-446-15	Operator, Organizational, Field and Depot Maintenance Manual: Wattmeter AN/URM-120.
TM 38-750	The Army Maintenance Management System (TAMMS).

APPENDIX B
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts and special tools required for performance of direct support and general support maintenance of the C-2999/VRC and C-2742/VRC. This appendix is current as of 1 July 1976.

B-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Sections II and V. Repair Parts List. A list of repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence.

b. Sections III and VI. Special Tools List. Not applicable.

c. Sections IV and VII. National Stock Number and Part Number Index. A list, in ascending National item identification number (NIIN, last 9 digits) sequence, of all National stock numbers appearing in the listings, followed by a list, in alphameric sequence, of all part numbers appearing in the listings. National stock number and part numbers are cross-referenced to each illustration figure and item number appearance.

B-3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

a. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number.* The number used to identify each item called out in the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) *Source Code.* Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	*Definition*
PA —	Item procured and stocked for anticipated or known usage.
XD —	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XA, XD, and aircraft support items as restricted by AR 700-42.

(2) *Maintenance code.* Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code	*Application/Explanation*
O —	Support item is removed, replaced, used at the organizational level.
F —	Support item is removed, replaced, used at the direct support level.
H —	Support item is removed, replaced, used at the general support level.
D —	Support items that are removed, replaced, used at depot, mobile depot, specialized repair activity only.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes:

Code	*Application/Explanation*
D —	The lowest maintenance level capable of complete repair of the support item is the depot level, performed by depot.
Z —	Nonreparable. No repair is authorized.

(3) *Recoverability code.* Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Recoverability Codes	*Definition*
Z —	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
L —	Reparable item. Repair, condemnation, and disposal not authorized below depot/ specialized repair activity level.

c. National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items.

NOTE

When a stock numbered item is requisitioned, the repair part received may have a different part number than the part being replaced.

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

g. Unit of Measure (U/M). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly.

B-4. Special Information

Not applicable.

B-5. How to Locate Repair Parts

a. When National stock number or part number is unknown.

(1) *First.* Using the table of contents, determine the functional group within which the repair part belongs. This is necessary since illustrations are prepared for functional groups and listings are divided into the same groups.

(2) *Second.* Find the illustration covering the functional group to which the repair part belongs.

(3) *Third.* Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) *Fourth.* Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When National stock number or part number is known.

(1) *First.* Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in ascending NIIN sequence followed by a list of part numbers in ascending alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) *Second.* After finding the figure and item number, locate the figure and item number in the repair parts list.

B-6. Abbreviations

Not applicable

(Next printed page is 4)

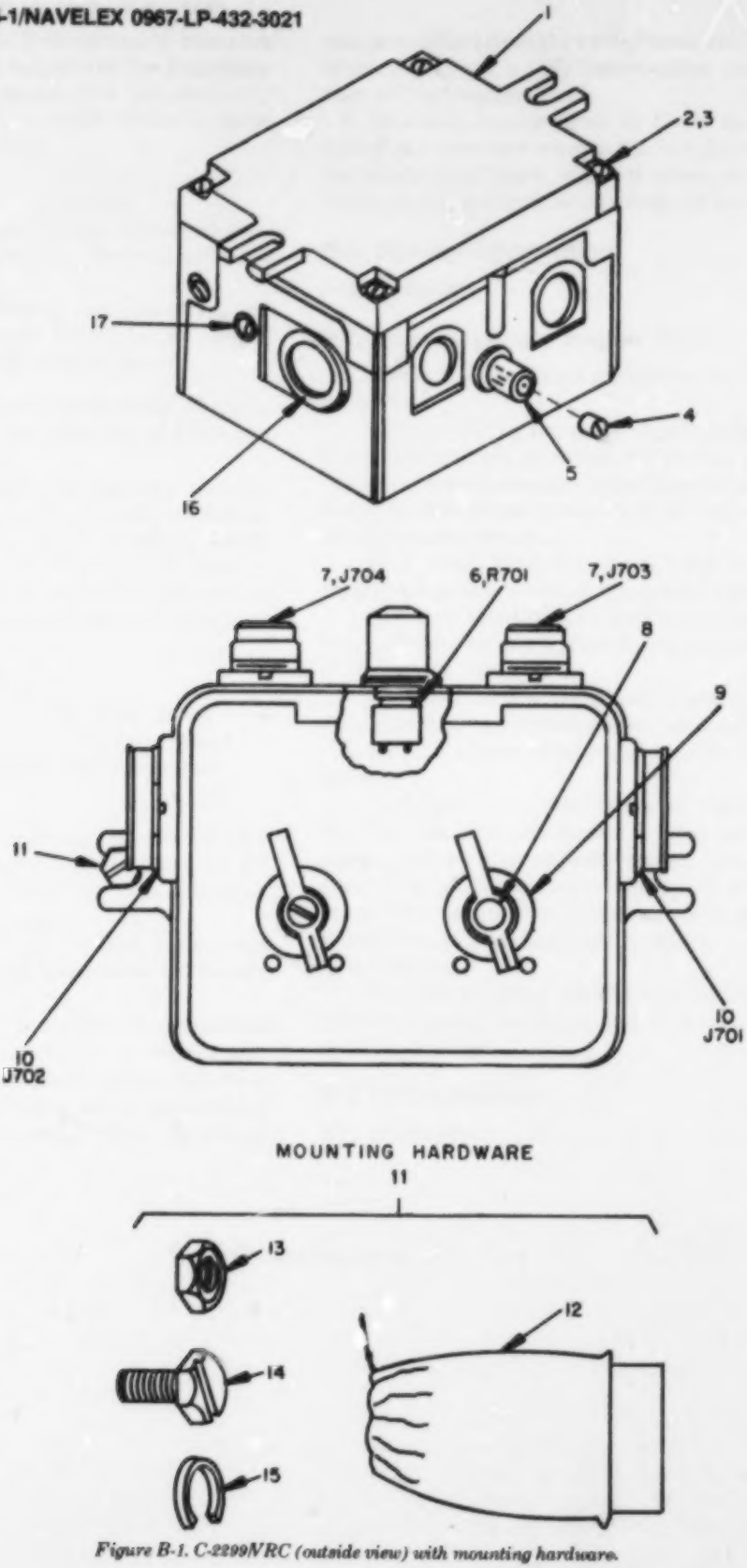

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Figure B-1. C-2299/VRC (outside view) with mounting hardware.

SECTION II. REPAIR PARTS LIST (C-2299/VRC)

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
						GROUP: 10 RADIO SET CONTROL C-2299/VRC		
B-1	1	XDOZZ		SMB415210	80063	COVER ASSEMBLY	EA	1
B-1	2	PAOZZ	5305-00-823-5837	SMC413884-7	80063	SCREW, MACHINE	EA	4
B-1	3	PAOZZ	5310-00-045-3296	MS35338-43	96906	WASHER, LOCK	EA	4
B-1	4	PAOZZ	5310-00-853-9676	SMB414395	80063	NUT, SLEEVE	EA	1
B-1	5	PAOZZ	5355-00-853-6384	SMC414399	80063	KNOB	EA	1
B-1	6	PAFZZ	5905-00-865-6301	SMB415189	80063	RESISTOR, VARIABLE	EA	1
B-1	7	PAFZZ	5935-00-823-0667	SMC415681	80063	CONNECTOR, PLUG, ELECTRICAL	EA	2
B-1	8	PAOZZ	5305-00-865-3895	MS21090-0621	96906	SCREW, SELF-LOCKING	EA	2
B-1	9	PAOZZ	5355-00-656-1358	MS91525-2	96906	KNOB	EA	2
B-1	10	PADZZ	5935-00-133-0394	SMB414991	80063	CONNECTOR, PLUG, ELECTRICAL	EA	2
B-1	11	XDOZZ		SMB415215	80063	MOUNTING HARDWARE	EA	1
B-1	12	XDOZZ		SMB415047	80063	BAG PART OF KIT P/N SMB415215	EA	1
B-1	13	PAOZZ	5310-00-880-7746	MS51968-5	96906	NUT, PLAIN HEXAGON PART OF KIT P/N SMB415215	EA	3
B-1	14	PAOZZ	5306-00-225-9089	MS90726-34	96906	SCREW, CAP HEXAGON HEAD PART OF KIT P/N SMB415215	EA	3
B-1	15	PAOZZ	5310-00-889-2527	MS45904-72	96906	WASHER, SPLIT PART OF KIT SMB415215	EA	6
B-1	16	PAOZZ	5935-00-933-3752	SMB104328	80063	DUST CAP	EA	2
B-1	17	PAOZZ	5305-00-245-8836	SMC414131-2	80063	SCREW, MACHINE	EA	1

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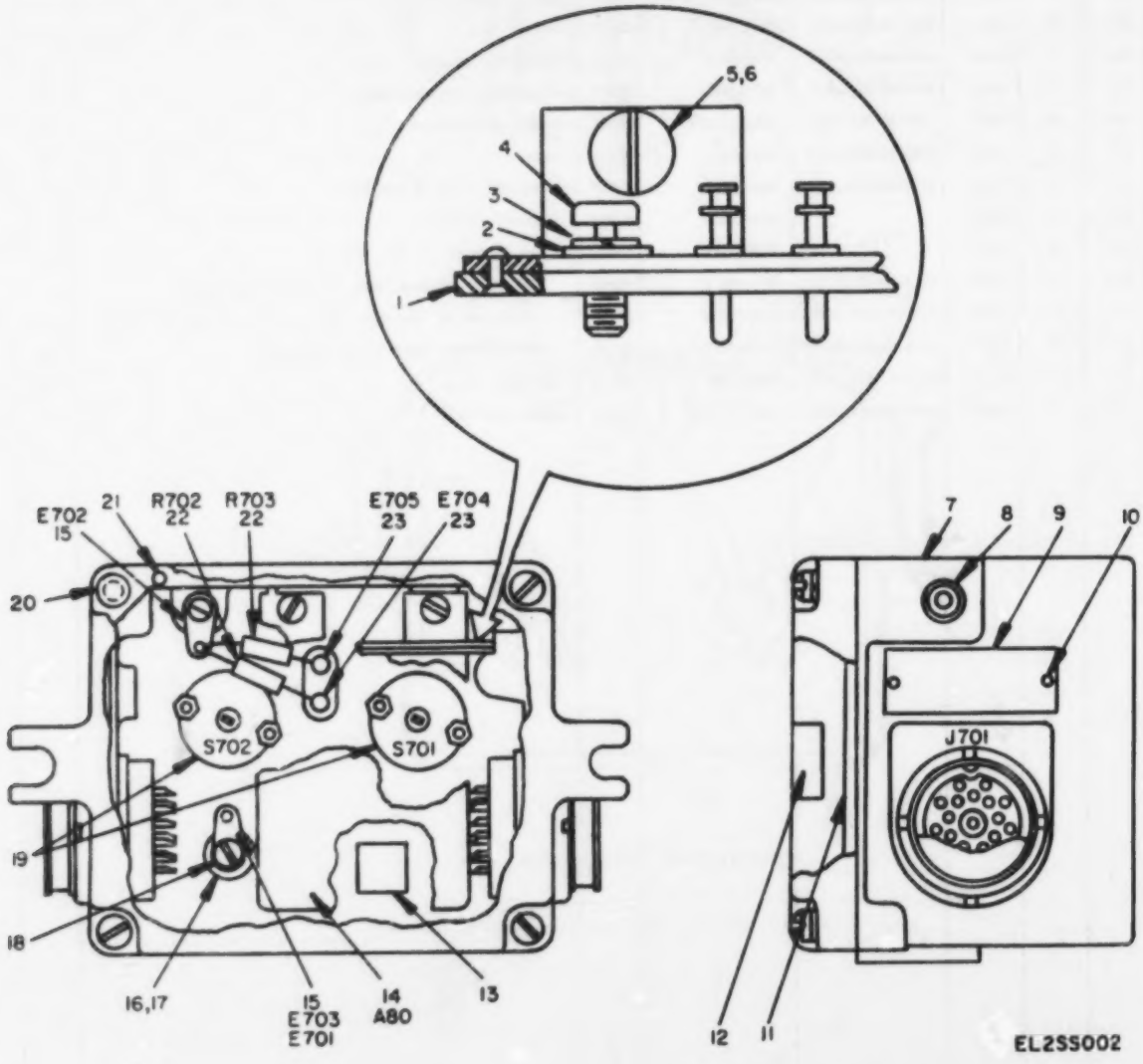

Figure B-2. C-2299/VRC (inside view).

SECTION II REPAIR PARTS LIST (C-2299/VRC) (CONTINUED)

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B-2	1	PAFZZ	5940-00-082-4622	SMC415193	80063	BRACKET ASSEMBLY	EA	1
B-2	2	PAFZZ	5310-00-167-0815	AN960-4	88044	WASHER, FLAT	EA	2
B-2	3	PAFZZ	5310-00-543-2410	MS35338-40	96906	WASHER, SPLIT	EA	2
B-2	4	PAFZZ	5305-00-152-0544	SMC413531-14	80063	SCREW	EA	2
B-2	5	PADZZ	5340-00-823-5327	MM16432-18	73957	INSERT, SCREW THREAD	EA	2
B-2	6	PAFZZ	5305-00-451-6179	SMC413884-11	80063	SCREW, MACHINE	EA	1
B-2	7	XDDZZ		SMC415212	80063	HOUSING ASSEMBLY	EA	2
B-2	8	PADZZ	5340-00-451-8285	MM25028-18	73957	INSERT, SCREW THREAD	EA	1
B-2	9	XDDZZ		SMC415190	80063	PLATE, IDENTIFICATION	EA	2
B-2	10	PACZZ	5305-00-253-5609	MS21318-43	96906	SCREW, MACHINE	EA	1
B-2	11	PAFZZ	5330-00-095-2256	SMC414114-11	80063	PACKING, PREFORMED	EA	1
B-2	12	XDDZZ		SMC415192-2	80063	PAD	EA	1
B-2	13	XDDZZ		SMC415192-1	80063	PAD	EA	1
B-2	14	PAFDL	5820-00-886-3152	SMC415198	80063	AMPLIFIER ASSEMBLY, MICROPHONE	EA	3
B-2	15	PAFZZ	5940-00-050-2308	MS35431-3	96906	TERMINAL, LUG	EA	2
B-2	16	PADZZ	5340-00-823-5249	MM13832-18	73957	INSERT, SCREW THREAD	EA	2
B-2	17	PAFZZ	5305-00-638-3435	MS35223-25	96906	SCREW, MACHINE	EA	2
B-2	18	PAFZZ	5310-00-209-0788	MS35335-30	96906	WASHER, LOCK	EA	2
B-2	19	PAFZZ	5930-00-886-8133	SMD415188	80063	SWITCH, ROTARY	EA	4
B-2	20	PADZZ	5340-00-451-6181	MM19032-18	73957	INSERT, SCREW THREAD	EA	3
B-2	21	XDDZZ		MS171494	96906	PIN STRAIGHT, HEADLESS	EA	2
B-2	22	PAFZZ	5905-00-299-1541	RC20GF151J	81349	RESISTOR, FIXED, COMPOSITION	EA	2
B-2	23	PAFZZ	5940-00-082-4922	4870-1-0516	T1279	TERMINAL, STUD		

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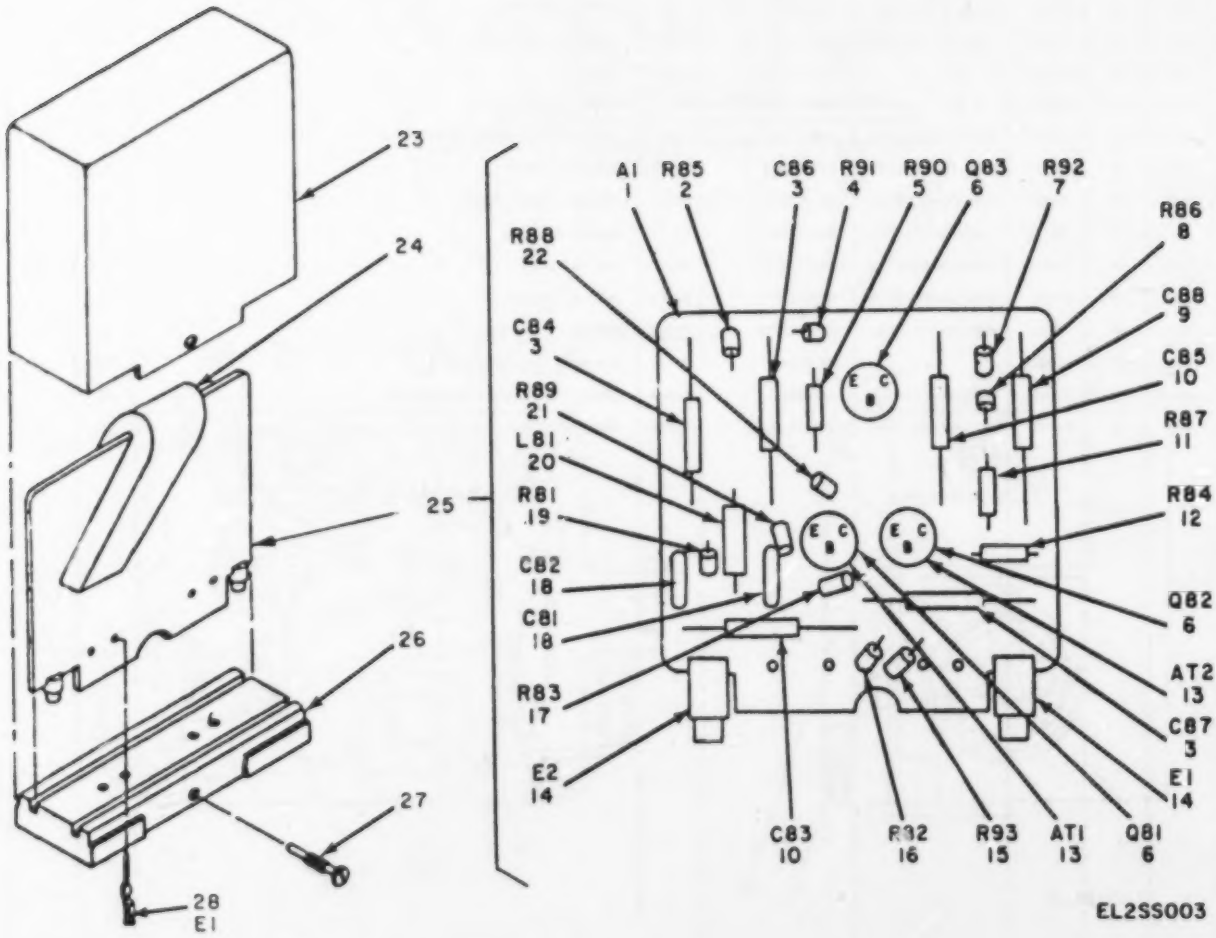

Figure B-3. A80 module.

SECTION II REPAIR PARTS LIST (C-2299/VRC)(CONTINUED)

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
						GROUP: 1001 MODULE A80		
B-3	1	XDDZZ		SMC415205	80063	PRINTED CIRCUIT BOARD	EA	1
B-3	2	PADZZ	5905-00-835-1633	RC07GF360J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	3	PADZZ	5910-00-164-2972	M39003-01-3029	81349	CAPACITOR, FIXED, ELECTROLYTIC	EA	3
B-3	4	PADZZ	5905-00-820-9124	RC07GF390J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	5	PADZZ	5905-00-681-6462	RC07GF102J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	6	PADZZ	5961-00-892-3473	JAN2N526	80131	TRANSISTOR	EA	3
B-3	7	PADZZ	5905-00-683-7723	RC07GF152J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	8	PADZZ	5905-00-686-3798	RC07GF272J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	9	PADZZ	5910-00-044-6140	CSR13E336KL	81349	CAPACITOR, FIXED, ELECTROLYTIC	EA	1
B-3	10	PADZZ	5910-00-113-5475	M3900301-3006	81349	CAPACITOR, FIXED, ELECTROLYTIC	EA	2
B-3	11	PADZZ	5905-00-681-9969	RC07GF332J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	12	PADZZ	5905-00-686-9998	RC07GF472J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	13	PADZZ	5970-00-752-5321	A10012	07047	PAD, TRANSISTOR	EA	2
B-3	14	PADZZ	5940-00-050-2308	MS35431-3	96906	TERMINAL, LUG	EA	2
B-3	15	PADZZ	5905-00-802-6730	RC07GF470J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	16	PADZZ	5905-00-723-5251	RC07GF222J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	17	PADZZ	5905-00-691-0195	RC07GF562J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	18	PADZZ	5910-00-838-9421	CK60AW102M	81349	CAPACITOR, FIXED, MICA DIELECTRIC	EA	2
B-3	19	PADZZ	5905-00-119-8811	RC07GF151J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	20	PADZZ	5950-00-059-3904	MS75008032	96906	COIL, RADIO FREQUENCY	EA	1
B-3	21	PADZZ	5905-00-683-2236	RC07GF391J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	22	PADZZ	5905-00-683-2242	RC07GF471J	81349	RESISTOR, FIXED, COMPOSITION	EA	1
B-3	23	XDDZZ		SMC415201	80063	COVER, AMPLIFIER	EA	1
B-3	24	XDDZZ		SMB415989	80063	STRIP, RUBBER	EA	1
B-3	25	XDDDL		SMD415203	80063	AMPLIFIER, SUBASSEMBLY	EA	1
B-3	26	XDDZZ		SMD415200	80063	BASE, AMPLIFIER	EA	1
B-3	27	PADZZ	5305-00-152-0546	SMB413837	80063	SCREW, MACHINE	EA	1
B-3	28	XDDZZ		SMC413574	80063	CONTACT, ELECTRICAL	EA	4

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SECTION IV NATIONAL STOCK NUMBER AND PART NUMBER INDEX (C-2299/VRC)

STOCK NUMBER	FIG. NO.	ITEM NO.
5910-00-044-6140	B-3	9
5310-00-045-3296	B-1	3
5940-00-050-2308	B-2	15
5940-00-050-2308	B-3	14
5950-00-059-3904	B-3	20
5940-00-082-4622	B-2	1
5940-00-082-4922	B-2	23
5330-00-095-2256	B-2	11
5910-00-113-5475	B-3	10
5905-00-119-8811	B-3	19
5935-00-133-0394	B-1	10
5305-00-152-0544	B-2	4
5305-00-152-0546	B-3	27
5910-00-164-2972	B-3	3
5310-00-167-0815	B-2	2
5310-00-209-0788	B-2	18
5306-00-225-9089	B-1	14
5305-00-245-8836	B-1	17
5305-00-253-5609	B-2	10
5905-00-299-1541	B-2	22
5305-00-451-6179	B-2	6
5340-00-451-6181	B-2	20
5340-00-451-8285	B-2	8
5310-00-543-2410	B-2	3
5305-00-638-3435	B-2	17
5355-00-656-1358	B-1	9
5905-00-681-6462	B-3	5
5905-00-681-9969	B-3	11
5905-00-683-2236	B-3	21
5905-00-683-2242	B-3	22
5905-00-683-7723	B-3	7
5905-00-686-3798	B-3	8
5905-00-686-9998	B-3	12
5905-00-691-0195	B-3	17
5905-00-723-5251	B-3	16
5970-00-752-5321	B-3	13
5905-00-802-6730	B-3	15
5905-00-820-9124	B-3	4
5935-00-823-0667	B-1	7
5340-00-823-5249	B-2	16
5340-00-823-5327	B-2	5
5305-00-823-5837	B-1	2
5905-00-835-1633	B-3	2
5910-00-838-9421	B-3	18
5355-00-853-6384	B-1	5
5310-00-853-9676	B-1	4
5305-00-865-3895	B-1	8
5905-00-865-6301	B-1	6
5310-00-880-7746	B-1	13
5820-00-886-3152	B-2	14
5930-00-886-8133	B-2	19
5310-00-889-2527	B-1	15
5961-00-892-3473	B-3	6
5935-00-933-3752	B-1	16

SECTION IV NATIONAL STOCK NUMBER AND PART NUMBER INDEX (C-2299/VRC) (CONTINUED)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
AN960-4	88044	B-2	2
A10012	07047	B-3	13
CK60AW102M	81349	B-3	18
CSR13E336KL	81349	B-3	9
HN19032-18	73957	B-2	20
HM25028-18	73957	B-2	8
JAN2N526	80131	B-3	6
MS171494	96906	B-2	21
MS21090-0621	96906	B-1	8
MS21318-43	96906	B-2	10
MS35223-25	96906	B-2	17
MS35335-30	96906	B-2	18
MS35338-40	96906	B-2	3
MS35338-43	96906	B-1	3
MS35431-3	96906	B-2	15
MS35431-3	96906	B-3	14
MS45904-72	96906	B-1	15
MS51968-5	96906	B-1	13
MS75008032	96906	B-3	20
MS90726-34	96906	B-1	14
MS91525-2	96906	B-1	9
M3900301-3006	81349	B-3	10
M39003-01-3029	81349	B-3	3
NM13832-18	73957	B-2	16
NM16432-18	73957	B-2	5
RC07GF102J	81349	B-3	5
RC07GF151J	81349	B-3	19
RC07GF152J	81349	B-3	7
RC07GF222J	81349	B-3	16
RC07GF272J	81349	B-3	8
RC07GF332J	81349	B-3	11
RC07GF360J	81349	B-3	2
RC07GF390J	81349	B-3	4
RC07GF391J	81349	B-3	21
RC07GF470J	81349	B-3	15
RC07GF471J	81349	B-3	22
RC07GF472J	81349	B-3	12
RC07GF562J	81349	B-3	17
RC20GF151J	81349	B-2	22
SMB104328	80063	B-1	16
SMB413837	80063	B-3	27
SMB414395	80063	B-1	4
SMB415047	80063	B-1	12
SMB415210	80063	B-1	1
SMB415215	80063	B-1	11
SMB415989	80063	B-3	24
SMC413531-14	80063	B-2	4
SMC413574	80063	B-3	28
SMC413884-11	80063	B-2	6
SMC414114-11	80063	B-2	11
SMC414131-2	80063	B-1	17
SMC415190	80063	B-2	9
SMC415192-1	80063	B-2	13
SMC415192-2	80063	B-2	12
SMC415198	80063	B-2	14
SMC415201	80063	B-3	23
SMC415205	80063	B-3	1
SMC415212	80063	B-2	7
SMC413884-7	80063	B-1	2
SMC414399	80063	B-1	5
SMC415193	80063	B-2	1
SMC415681	80063	B-1	7
SMD414991	80063	B-1	10
SMD415188	80063	B-2	19
SMD415189	80063	B-1	6
SMD415200	80063	B-3	26
SMD415203	80063	B-3	25
4870-1-0516	71279	B-2	23

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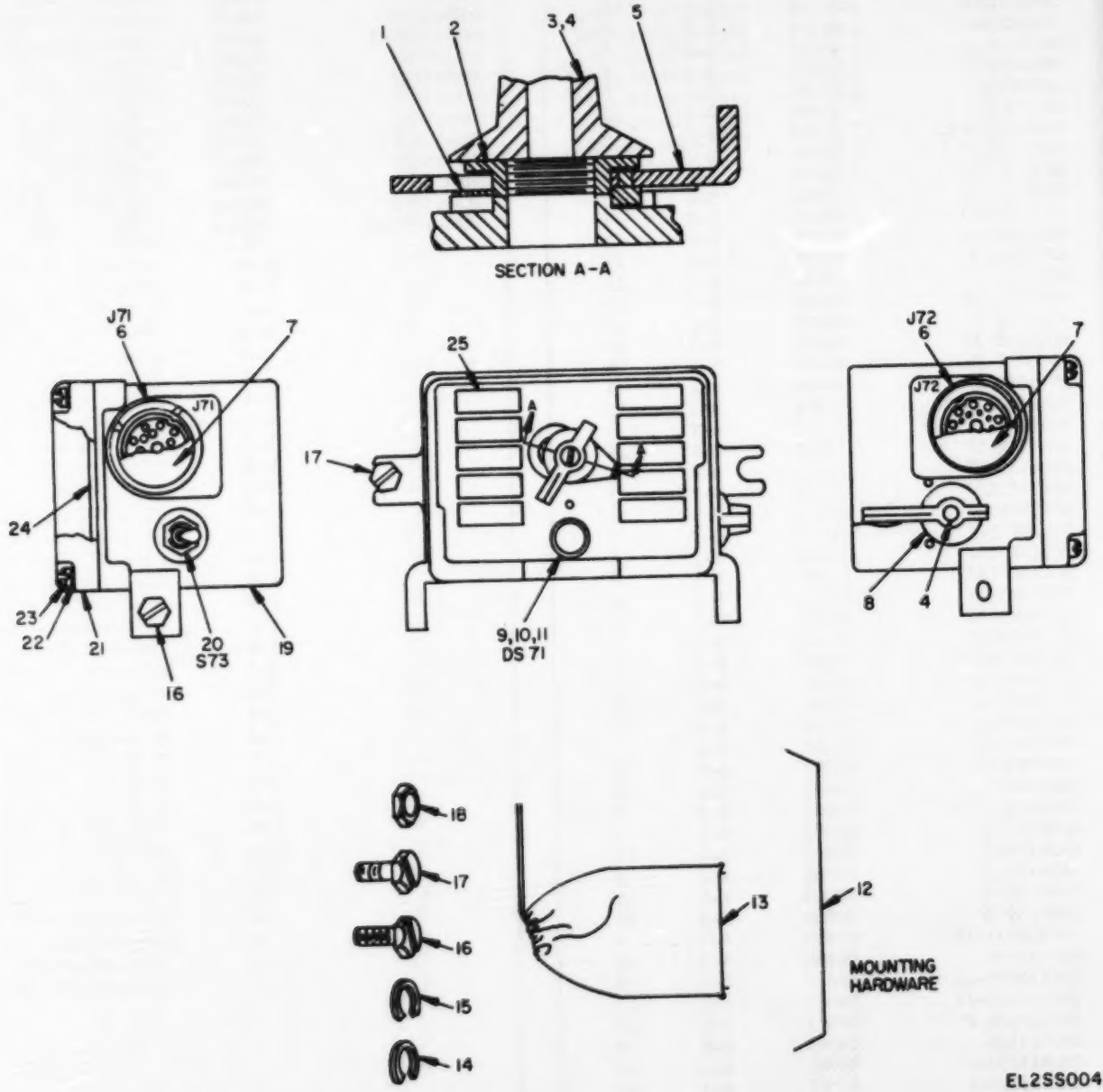

Figure B-4. C-2742/NRC (outside view) with mounting hardware.

SECTION V REPAIR PARTS LIST (C-2742/VRC)

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
						GROUP: 11 FREQUENCY CONTROL SELECTOR C-2742/VRC	EA	1
B-4	1	XDDZZ		SMC415159	80063	LOCK, STOP	EA	1
B-4	2	PADZZ	5310-00-823-8791	SMC415158	80063	NUT	EA	1
B-4	3	PAOZZ	5355-00-163-1617	SMD415161	80063	KNOB	EA	2
B-4	4	PAOZZ	5305-00-865-3895	MS21090-0621	96906	SCREW, SELF-LOCKING	EA	1
B-4	5	XDDZZ		SMB415169	80063	KNOB STOP ASSEMBLY	EA	2
B-4	6	PADZZ	5935-00-133-0394	SMD414991	80063	CONNECTOR, RECEPTACLE, ELECTRICAL	EA	2
B-4	7	PAOZZ	5935-00-933-3752	SMB104328	80063	CAP, DUST	EA	1
B-4	8	PAOZZ	5355-00-667-5889	SMD415160	80063	KNOB	EA	1
B-4	9	XDDZZ		SMC415155	80063	LIGHT INDICATOR	EA	1
B-4	10	PAOZZ	6240-00-155-7836	MS25237-327	96906	LAMP, INCANDESCENT	EA	1
B-4	11	PAOZZ	6210-00-886-5950	174-0113-203	72619	LENS	EA	1
B-4	12	XDDZZ		SMB415179	80063	MOUNTING HARDWARE	EA	1
B-4	13	XDDZZ		SMB415047	80063	BAG PART OF KIT P/N 415179	EA	6
B-4	14	PAOZZ	5310-00-889-2527	MS45904-72	96906	WASHER, LOCK PART OF KIT P/N 415179	EA	3
B-4	15	PAOZZ	5310-00-889-2528	MS45904-68	96906	WASHER, LOCK PART OF KIT P/N 415179	EA	3
B-4	16	PAOZZ	5305-00-068-0506	MS90726-6	96906	SCREW, CAP HEXAGON HEAD PART OF KIT P/N 415179	EA	3
B-4	17	PAOZZ	5305-00-225-9089	MS90726-34	96906	SCREW, CAP HEXAGON HEAD PART OF KIT P/N 415179	EA	3
B-4	18	PAOZZ	5310-00-880-7746	MS51968-5	96906	NUT, PLAIN HEXAGON	EA	1
B-4	19	XDDZZ		SMD415166	80063	HOUSING ASSEMBLY	EA	1
B-4	20	PADZZ	5930-00-655-1517	SMD415153	80063	SWITCH, TOGGLE	EA	1
B-4	21	XDOZZ		SMD415173	80063	COVER ASSEMBLY	EA	4
B-4	22	PAOZZ	5310-00-045-3296	MS35338-43	96906	WASHER, LOCK-SPRING, HELICAL	EA	4
B-4	23	PAOZZ	5305-00-823-5837	SMC413884-7	80063	SCREW, EXTERNALLY RELIEVED BODY	EA	1
B-4	24	PAFZZ	5330-00-892-4111	SMC414114-10	80063	PACKING, PREFORMED	EA	1
B-4	25	XDDZZ		SMB415154	80063	PLATE, MARKING		

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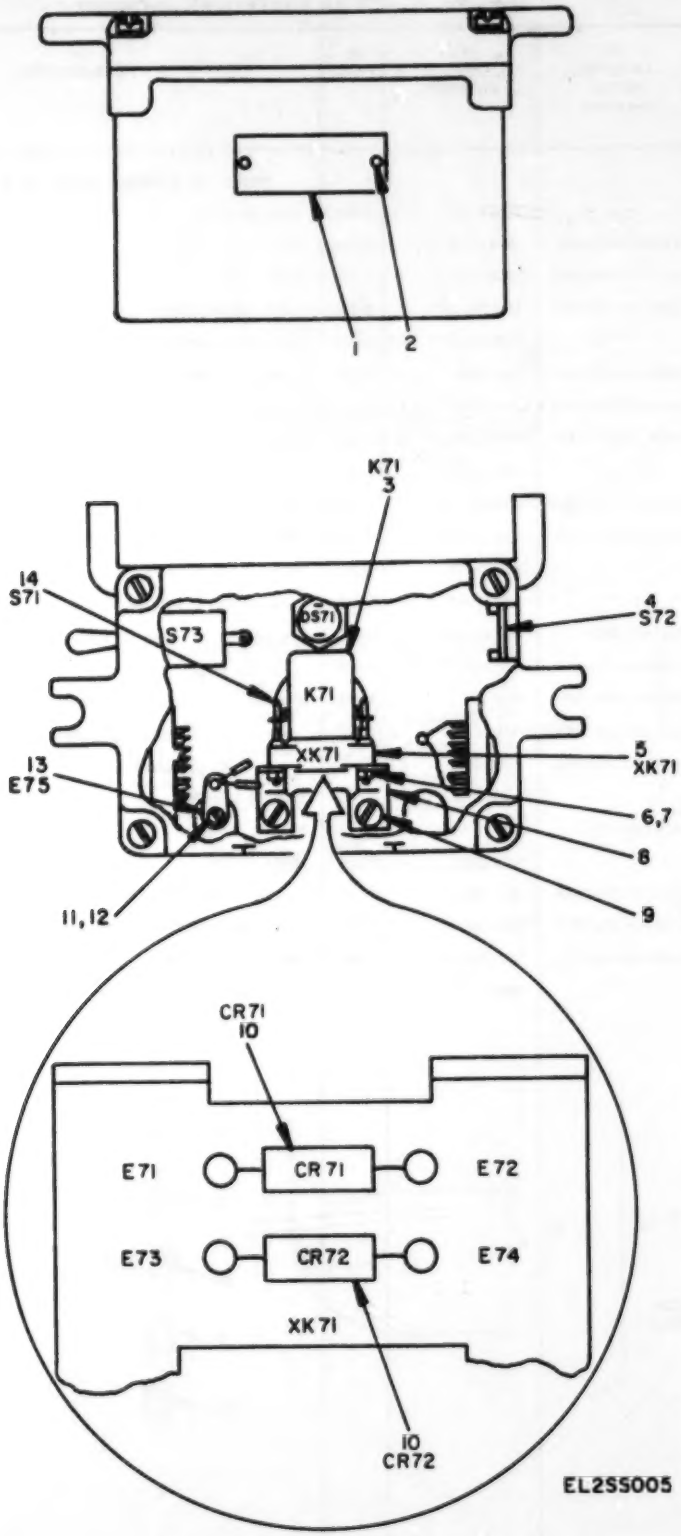

Figure B-5. C-2742/VRC (inside view).

SECTION V REPAIR PARTS LIST (C-2742/VRC) (CONTINUED)

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B-5	1	XDDZZ		SMC415164	80063	PLATE, IDENTIFICATION	EA	1
B-5	2	PADZZ	5305-00-253-5609	MS21318-13	96906	SCREW, DRIVE	EA	2
B-5	3	PADZZ	5945-00-823-2668	SMD415157	80063	RELAY	EA	1
B-5	4	PADZZ	5930-00-889-5921	SMD415162	80063	SWITCH, ROTARY	EA	1
B-5	5	PADZZ	5935-00-886-9597	SMD415156	80063	SOCKET, RELAY	EA	1
B-5	6	PADZZ	5310-00-543-5060	MS35338-39	96906	WASHER, LOCK-SPRING, HELICAL	EA	2
B-5	7	PADZZ	5310-00-934-9738	MS35649-222	96906	NUT, PLAIN HEXAGON	EA	2
B-5	8	XDDZZ		SMB415176	80063	BRACKET ASSEMBLY	EA	1
B-5	9	PADZZ	5305-00-451-6179	SMC413884-11	80063	SCREW, MACHINE	EA	2
B-5	10	PADZZ	5961-00-985-4900	1N647	81349	SEMICONDUCTOR DEVICE, DIODE	EA	2
B-5	11	PADZZ	5310-00-209-0788	MS35335-30	96906	WASHER, LOCK	EA	1
B-5	12	PADZZ	5305-00-638-3435	MS35223-25	96906	SCREW, MACHINE	EA	1
B-5	13	PADZZ	5940-00-050-2308	MS35431-3	96906	TERMINAL	EA	2
B-5	14	PADZZ	5930-00-889-5920	SMD415163	80063	SWITCH	EA	1

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SECTION VII NATIONAL STOCK NUMBER AND PART NUMBER INDEX (C-2742/VRC)

STOCK NUMBER	FIG. NO.	ITEM NO.	STOCK NUMBER	FIG. NO.	ITEM NO.
5310-00-045-3296	B-4	22			
5940-00-050-2308	B-5	13			
5305-00-068-0506	B-4	16			
5935-00-133-0394	B-4	6			
6240-00-155-7836	B-4	10			
5355-00-163-1617	B-4	3			
5310-00-209-0788	B-5	11			
5306-00-225-9089	B-4	17			
5305-00-253-5609	B-5	2			
5305-00-451-6179	B-5	9			
5310-00-543-5060	B-5	6			
5305-00-638-3435	B-5	12			
5930-00-655-1517	B-4	20			
5355-00-667-5889	B-4	8			
5945-00-823-2668	B-5	3			
5305-00-823-5837	B-4	23			
5310-00-823-8791	B-4	2			
5305-00-865-3895	B-4	4			
5310-00-880-7746	B-4	18			
6210-00-886-5950	B-4	11			
5935-00-886-9597	B-5	5			
5310-00-889-2527	B-4	14			
5310-00-889-2528	B-4	15			
5930-00-889-5920	B-5	14			
5930-00-889-5921	B-5	4			
5330-00-892-4111	B-4	24			
5935-00-933-3752	B-4	7			
5310-00-934-9738	B-5	7			
5961-00-985-4900	B-5	10			

SECTION VII NATIONAL STOCK NUMBER AND PART NUMBER INDEX (C-2742/VRC)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
MS21090-0621	96906	B-4	4
MS21318-13	96906	B-5	2
MS25237-327	96906	B-4	10
MS35223-25	96906	B-5	12
MS35335-30	96906	B-5	11
MS35338-39	96906	B-5	6
MS35338-43	96906	B-4	22
MS35431-3	96906	B-5	13
MS35649-222	96906	B-5	7
MS45904-68	96906	B-4	15
MS450904-72	96906	B-4	14
MS51968-5	96906	B-4	18
MS90726-34	96906	B-4	17
MS90726-6	96906	B-4	16
SMB104328	80063	B-4	7
SMB415047	80063	B-4	13
SMB415154	80063	B-4	25
SMB415169	80063	B-4	5
SMB415176	80063	B-5	8
SMB415179	80063	B-4	12
SMC413884-11	80063	B-5	9
SMC413884-7	80063	B-4	23
SMC414114-10	80063	B-4	24
SMC415155	80063	B-4	9
SMC415158	80063	B-4	2
SMC415159	80063	B-4	1
SMC415164	80063	B-5	1
SMD414991	80063	B-4	6
SMD415153	80063	B-4	20
SMD415156	80063	B-5	5
SMD415157	80063	B-5	3
SMD415160	80063	B-4	8
SMD415161	80063	B-4	3
SMD415162	80063	B-5	4
SMD415163	80063	B-5	14
SMD415166	80063	B-4	19
SMD415173	80063	B-4	21
174-0113-203	72619	B-4	11
1N647	81349	B-5	10

PART NUMBER	FSCM	FIG. NO.	ITEM NO.

By Order of the Secretaries of the Army and the Navy:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major, General, United States Army
The Adjutant General

RAYMOND J. SCHNEIDER
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